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# DISEASES OF THE SKIN

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CROCKER

VOL. I



# DISEASES OF THE SKIN

THEIR

DESCRIPTION, PATHOLOGY, DIAGNOSIS, AND  
TREATMENT

WITH

SPECIAL REFERENCE TO THE SKIN ERUPTIONS OF CHILDREN

AND

AN ANALYSIS OF FIFTEEN THOUSAND CASES OF SKIN DISEASE

BY

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THIRD EDITION, REVISED AND ENLARGED

**Special Illustrated Edition, with Seventy-six Plates and One  
Hundred and Twelve Illustrations**

VOL. I

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## PREFACE TO THE THIRD EDITION

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THE exigencies of practice and other engagements, as well as the enormous literature produced by numerous workers in dermatology in all civilized countries, have rendered the preparation of this edition a long and arduous task, and the Second Edition has been out of print for the last three years.

It has been my earnest endeavor to bring the work up to date. Many of the articles have been entirely rewritten, and all have been thoroughly revised, and often in great part recast; nevertheless the book has grown considerably, but as my aim has been to make it as clinically complete as possible, the growth has been almost entirely on this side. The original plan of the work has, however, been preserved, so that the student can without trouble at first confine his attention to the most important features of the commonest diseases, while he can use it as a work of reference as his practical knowledge increases (*vide* p. 31).

A few of the names of the diseases have been changed from the last edition, such as Dermatitis herpetiformis for Hydroa herpetiformis, Lichen acuminatus instead of Pityriasis rubra pilaris, etc.; but this has been almost entirely in the interests of uniformity of nomenclature, these being the names which have met with the most general acceptance. A very few other changes have been made for other reasons.

The following are among the new articles: Acrodermatitis perstans, Persistent balanitis, Cheilitis exfoliativa, Lichen annulatus, Erythema serpens and Erysipeloid, Erythema elevatum diutinum, "Gayle" in man, X-Ray dermatitis, Toxin Serum Eruptions, Bronzing of the Skin in Diabetes, Keratolysis exfoliativa congenita, Porokeratosis, Mal de Meleda, Lupus marginatus, Granuloma annulare, Granuloma inguinale tropicum, Granuloma pyogenicum, Sarcoid, Mortimer's Malady; Pseudo-xanthoma elasticum, Leukæmia and Pseudo-leukæmia cutis,

Chloroma, Endothelioma capitis, Veld sore; Hydrocystoma, Milium congenitale, Acne keratosa, Acne necrotisans, Acne agminata, Folliclis, Alopecia seborrhoica, Alopecia cicatrisata, Ulerythema ophryogenes, Folliculitis decalvans, Lentigo senilis, Blastomycosis hominis, etc. For most of the above long list, which is not complete, the articles have been short, but there have been many others, such as Erythema scarlatiniforme recidivans, Parakeratosis variegata (Lichen variegatus), etc., which had only a brief mention in the previous edition, but have now had, on account of our increased experience and knowledge of them, to be expanded into comparatively important articles.

With the view of helping my co-workers, numerous references have been given, especially choosing those which best opened up the literature of the subject. References to colored illustrations of most forms of skin diseases have also been given, largely, as is natural, to my own Atlas; but where the particular form of disease was not illustrated there, or where there was an especially good plate in another atlas or article, attention has been drawn to it, so that the reader may be enabled to help himself to realize the description in the text. With this object also a colored plate of the principal syphilids has been introduced, as their diagnosis can be made from a sample of the eruption, better than is the case in most non-specific eruptions where distribution, generally, plays so important a part. Two plates have also been given of the Ringworm Fungi in accordance with the most modern views.

In conclusion, I have to thank Mr. George Pernet, not only for assisting me in reading the proofs and other help while the book has been passing through the press, but for cordial and indefatigable assistance in sifting the literature of the subject, in preparing the microscopical sections for the new illustrations, and for writing the section in the Appendix on the Staining of Micro-organisms. My thanks are also due to Mr. Harold Wilson, B. Sc., Head Dispenser at University College Hospital, for reading the proofs of the formulary at the end, to prevent pharmaceutical errors being passed over.

121 HARLEY STREET, *December 21, 1902.*

## CORRIGENDA.

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- Page 565.** For Fig. 27, *read* Fig. 27A.  
" 574. Line 9 from bottom, for papillomatous, *read* papillomatosa.  
" 640. " 16 from bottom, for Stockholm, *read* Ulm.  
" 640. " 12 from bottom, for Schurigii, *read* Schurigius  
(Schurig).  
" 900. Note, for Santon, *read* Sauton,  
" 904. " " Syder, *read* Lyder.



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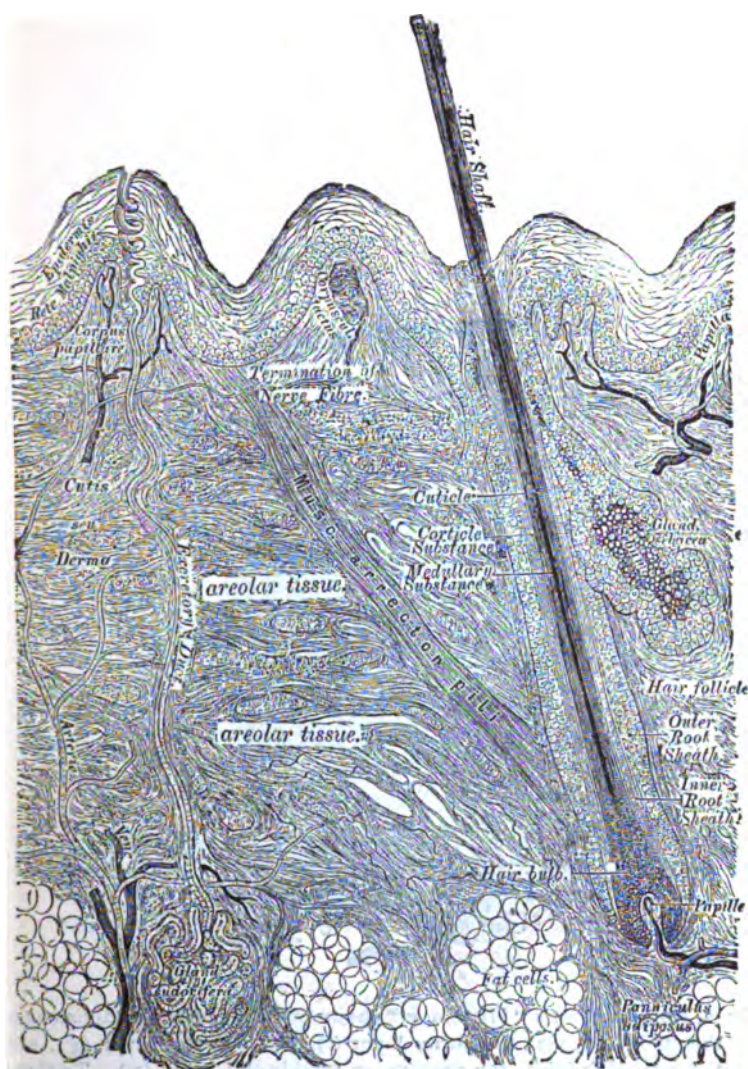
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**Fig. 1** is a general diagrammatic view of the skin, after Heitzmann. It shows three divisions of the skin, viz., the epidermis or epithelial part; the corium or true skin or fibrous part; and the subcutaneous tissue, panniculus adiposus or fat layer. In the upper part of the corium, called the papillary layer, are the skin papillæ containing vessels and nerve terminations and lymph spaces, while the middle and deep layers contain the vascular plexuses, the hair follicle, its muscle, and sebaceous glands, and the tortuous sweat duct which traverses it to reach the sweat coil situated in the fat layer.

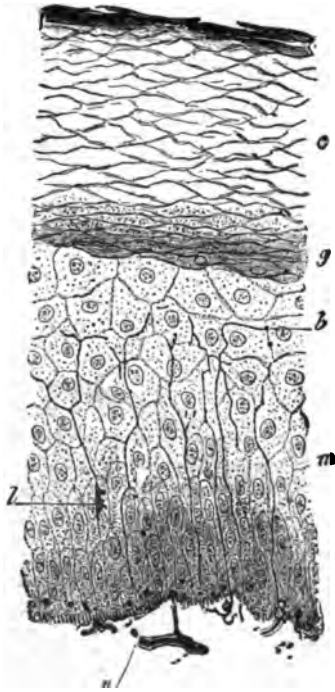
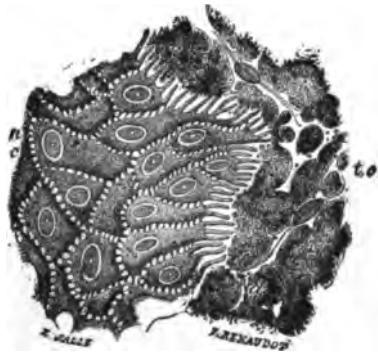
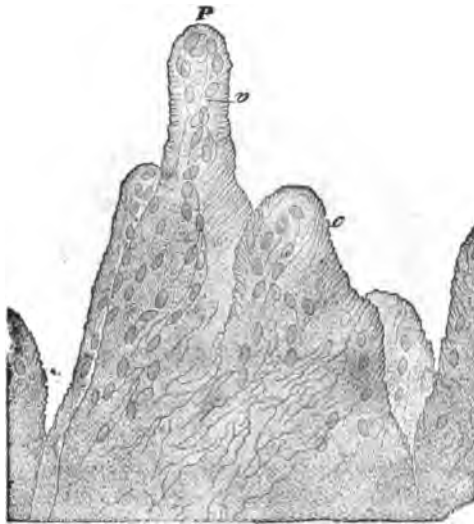


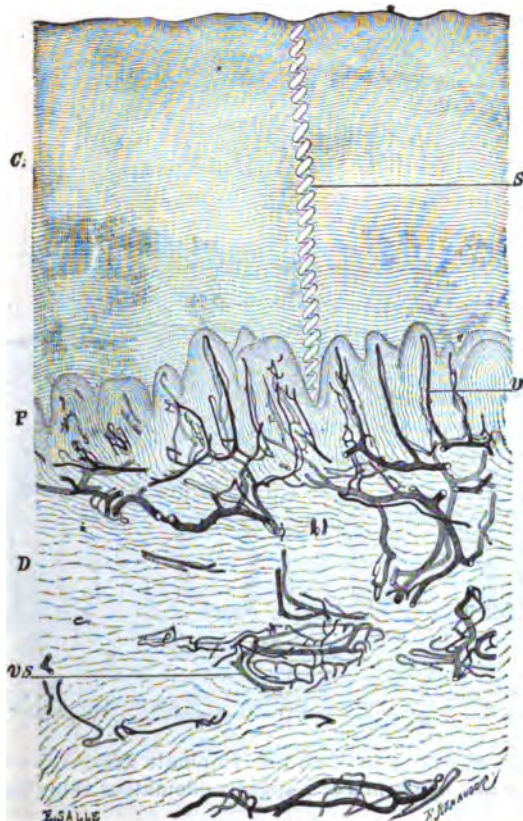
Fig. 2, from Ranvier's "Histology," shows the three principal divisions of the epidermis, viz., the horny layer (*c*), the granular layer (*g*), and the rete Malpighii, the mucous or prickle-cell layer (*m*). To these some add a fourth layer, or stratum lucidum, which lies just above *g*, but it is only a subdivision of the horny layer. The lowest row of cells of the rete also are cylindrical and placed perpendicularly, and are sometimes called the "palisade layer." This figure also shows the nerve terminations in the rete; *n* is the afferent nerve, *b* the terminal nerve bulbs, and *l* is a cell of Langerhans.



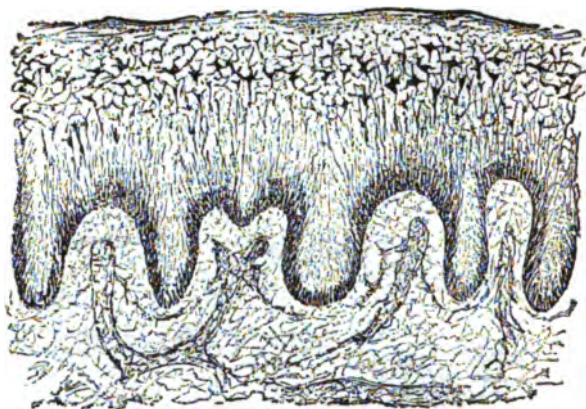
**Fig. 3, from Ranvier's "Histology," shows the cells of the rete Malpighii more highly magnified in order to demonstrate their prickly-like processes, which, at their junction with those of the neighboring cells, leave small channels between the cells.**



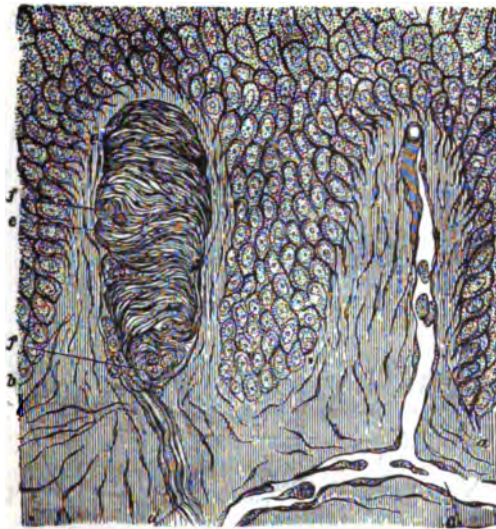
**Fig. 4, also from Ranvier, shows the papillæ of the pulp of the finger after the epidermis has been detached by soaking in iodized serum: *P*, papillæ; *v*, blood-vessel ; *c*, papillary ridges. Other views of the papillæ are exhibited in Fig. 5 and Fig. 7.**



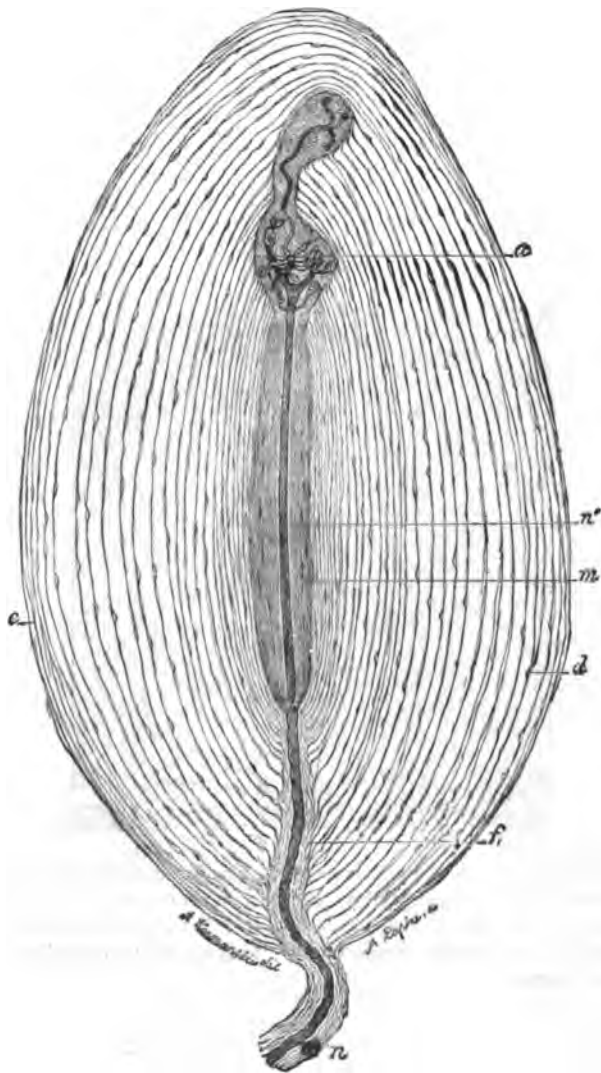
**Fig. 5, from Ranvier, shows the arrangement of the blood-vessels in the papillary layer of the corium: *c* is the epidermis traversed by a sweat channel, *s*; *d* is the corium; *p* points to the papillæ; and *v*, the arterial and venous capillaries of the papillæ, constituting the superficial or papillary plexus. This plexus also supplies the hair follicles and a "basket-like" plexus to the sebaceous glands. The drawing only shows a part of the other or deep horizontal plexus, which runs at the upper border of the subcutaneous tissue, and communicates with the superficial plexus by perpendicular vessels. The deep plexus supplies the sweat coils by means of a delicate plexus, as at *v s*, gives a single loop to the hair papilla and networks for the fat lobules.**



**Fig. 6.—Staining with gold of all the lymphatic channels of the papillary layer and epidermis of a slightly edematous skin (Unna).**



**Figs. 7 and 8** are to show the tactile and Pacinian corpuscles. Fig. 7 (Bie-siadecki) shows *a*, a vascular, and *b*, a nervous papilla; *c* is a blood-vessel; *d*, a medullated nerve fiber inclosed in a thick nucleated sheath; *e* is a tactile corpuscle; *f*, transversely divided medullated nerve fibers.



**Fig. 8 (Ranvier),** Pacinian corpuscle from the mesentery of a cat: *c*, capsules; *d*, endothelial lines which separate them; *n*, afferent nerve; *f*, funiculus; *m*, central club formation; *n'*, terminal fiber; *a*, point where one of the branches of the terminal fiber is divided into a great number of branches terminating in bulbs. The nerve terminations in the epidermis are shown in Fig. 2.

## ABBREVIATIONS.

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(Unless otherwise stated).

"Atlas" or "Author's Atlas" refers to my Folio Atlas of Diseases of the Skin, 1896.

"Brocq" refers to "Traitement des maladies de la peau," second edition (1892).

"Duhring" refers to "Diseases of the Skin," third edition. Only two parts of his new work, "Cutaneous Medicine," are published.

"Tilbury Fox" refers to his "Skin Diseases," third edition.

"Hebra" refers to the Sydenham Society's translation of Hebra and Kaposi's great work on diseases of the skin.

"Hutchinson" refers to "Lectures on Clinical Surgery," vol. i. ("On Certain Rare Diseases of the Skin.")

"Hutchinson's Archives" refers to the *Archives of Surgery*.

"International Atlas" refers to International Atlas of Rare Diseases of the Skin.

"Kaposi-Besnier" or "Kaposi Besnier-Doyon" refers to the second French edition (1891), from the third German edition of Kaposi's work.

"Kaposi" refers to American Translation, 1895.

"Leloir and Vidal" refers to the "Traité descriptif des maladies de la peau" of those authors, of which only three parts have appeared.

"Monatshefte" refers to the *Monatshefte für praktische Dermatologie*.

"Schwimmer" refers to "Die neuropathischen Dermatosen."

"Ziemssen" refers to "Handbook of Skin Diseases" volume of Ziemssen's Cyclopædia of the Practice of Medicine.

"St. Louis Atlas," refers to Atlas of Diseases of the Skin from the wax models in the Saint Louis Hospital, Paris, or the English translation by Pringle.



## INSTRUCTIONS TO THE STUDENT

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THE portions that the student should read at first are the sections on semeiology, etiology, pathology, and diagnosis in the general part, while in the special part he should confine his attention to the most common diseases, such as he could see in a few attendances at an out-patient clinic, reading at first only the description of the typical features of each disease, the pathology without the anatomy, and the leading points in the diagnosis and treatment. The work is so arranged that he can readily do this, and the less important details can be subsequently studied as his clinical experience enlarges.

The diseases he will want at first are erythema intertrigo, erythema scarlatiniforme, erythema exudativum multiforme and its special variety nodosum, urticaria, eczema, impetigo contagiosa, boils and carbuncles, herpes varieties, pemphigus, psoriasis, lichen planus, purpura, ichthyosis, elephantiasis, molluscum contagiosum, lupus vulgaris, lupus erythematosus, scrofuloderma, syphilis, keloid, rodent ulcer, pruritus, miliaria, seborrhea, comedones, acne vulgaris, acne rosacea, alopecia areata, sycosis, the various forms of tinea trichophytina, tinea versicolor, scabies, and the varieties of pediculosis.

It is by attempting too much at first that the student frequently fails both in examinations and practice, a useless smattering being often the sole result of his misdirected efforts. On the other hand, he should not begin to learn diseases till he has mastered the semeiology, which is as necessary as the alphabet is as a preliminary to reading.

*(For abbreviations see preceding page.)*



# DISEASES OF THE SKIN.

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## PART I.—GENERAL.

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### SEMEIOLOGY.

THE symptoms of skin disease are objective and subjective, and they may be limited to the skin itself, or involve other parts, or even the whole organism.

In some instances the skin disease is the primary event, and the general disturbance secondary to it, as in cases of extensive and severe skin diseases, which lead to general vital depression, febrile disturbance, or marasmus. On the other hand,—and this is by far the larger class,—some internal derangement, functional or organic, as in disturbances of the alimentary canal, the uterus and ovaries, the kidneys, etc., leads directly or indirectly to the skin disorder. Every departure from health, therefore, whether in the skin or elsewhere, must be duly examined into, and its relative importance considered.

### OBJECTIVE SYMPTOMS.

These comprise the elementary lesions of the skin, and are divided into primary and secondary. A clear appreciation of the exact characters of these lesions is essential for accurate diagnosis. And the omission to master this “A B C” knowledge of the subject makes dermatology a sealed book for a large proportion of the profession.

### PRIMARY LESIONS.

**Maculæ.** *Synonyms.*—Spots; Macules; *Fr.*, Taches; *Ger.*, Flecke.

*Definition.*—Macules are discolorations level with the skin, of various sizes, shapes, and tints.

Thus, their size may be from a pin's point to as large as the hand or more; they may be round, oval, or irregular, but most are roundish; they may be well or ill defined; less frequently are altered in density or consistence; but their most striking and variable feature is their *color*, which is generally some shade of red, yellow, or brown. They may, or may not, disappear under pressure; may last a short or a long time, or even be permanent; and while some have subjective symptoms, most have none. They may also be primary or secondary.

In describing maculæ, regard must be paid to their size, color, shape, definition, consistence, and changeability under the influence of time, pressure, or other conditions, and their subjective symptoms and mode of production.

Their causes are very numerous. They may be due to:

1. Hyperemia, arterial or venous. This congestive kind of macula is red if arterial, bluish-red if venous, and always disappears under pressure, and when associated, as often happens, with some inflammatory swelling, is slightly raised above the surface, and although there is fluid exudation from the vessels, it is not more than can be soaked up by the cells and tissues of the epidermis and corium. The eruption, as a whole, is included under some form of **erythema**, or **roseola**, the latter term being applied to general **exanthemata**, as in that of typhus or syphilis. Another form is the red areola round inflammatory foci.

2. Extravasation of blood, and blood-coloring matter, into the skin gives rise to spots of various sizes and shapes. They are unaltered by pressure, are bright or purplish-red at first, but undergo bruise-like changes of color as absorption occurs. When in the shape of streaks they are called **vibices**; when punctate, **petechiæ**; when of larger size, **ecchymoses**. They may occur as complications of inflammatory lesions. When blood-coloring matter alone escapes, yellowish, orange, or café au lait colored patches are produced, which are generally due to partial mechanical venous stasis, and are common on the legs.

3. Under both congenital and acquired conditions the vessels of the skin may become permanently dilated, or new vessels formed. The **capillary nevus** is an example of the congenital form; stellate and other shaped **telangiectases** exemplify the acquired form. They may be accompanied by inflammatory or other lesions.

4. Changes in the pigmentation of the skin, either from excess or deficiency, may exhibit themselves in various forms of spots or patches, and may be congenital, as in moles, or acquired, as in lentigo or chloasma, or the flat form of xanthoma, in which there are other changes besides discoloration. They may also be secondary to other inflammatory changes, as in the stains left by lichen planus, most syphilids, etc. Diffuse pigmentations are not generally called maculæ, but are spoken of simply as discolorations of the skin, as in Addison's disease, malarial melanosis, argyria, bile staining, etc.

From loss of pigment arise the white spots known as vitiligo or leukoderma; white spots are also seen in morphea and general scleroderma, but here there are other, more important changes, besides the loss of pigment.

Tropho-neurotic conditions also are often associated with whiteness of the skin, as in maculæ atrophicæ, glossy skin, etc.; but in these cases there is diminished volume of the skin also.

**Papulæ.** *Synonyms.*—Papules; Pimples; *Fr.*, Papules; *Ger.*, Knötchen.

*Definition.*—Papules are small elevations of the skin, not exceeding a split pea in size, nor visibly containing fluid.

Papules are always small; a pin's point to a small pea represents their extremes in size. Their shape may be round or angular at the base, and in elevation convex or lenticular, acutely or bluntly conical, or even flat at the top. In color they are some shade of red, white, or yellow. They may be situated in the epidermis or in the corium, and connected with the papillæ, sweat, or sebaceous glands, or with the hair follicles. In describing them, therefore, regard must be paid to their size, shape, color, and anatomical position in the skin, and to their mode of production and subjective symptoms. The tendency among the careless and ignorant is to make the term "lichen" synonymous with a papular eruption; this should be carefully avoided, as it always leads to confusion, and when employed without a qualifying term, as in "lichen planus," is utterly meaningless. A still more self-deceiving term is "lichenoid," which is only a cloak for ignorance.

Papules, when due to inflammation, may be: acuminate, as in papular eczema, or flat and angular, as in lichen planus, and

these may have a central depression; others are caused by excessive cornification of the epidermic follicular lining, as in keratosis pilaris; or by contraction of the arrectores, as in "goose skin," in which the papules are colorless; and according to Auspitz, their permanent contraction produces prurigo papules. Papules may also be produced by the accumulation of sebum, as in milium and comedo; by hemorrhage into hair follicles, as in purpura papulosa; and in the peculiar process of xanthoma. Some inflammatory papules—*e. g.*, some papular syphilids—are scaly; others may go on to vesiculation or pustulation, as often happens in papular eczema. Papules vary much in duration, and may be acute, chronic, or permanent; the last are non-inflammatory, as in milium. They may or may not be attended by itching, which is sometimes very severe.

**Nodulæ.** *Synonyms.*—Nodules; Tubercles; *Fr.*, Tubercules; *Ger.*, Knoten.

*Definition.*—Nodules are solid elevations of the skin, from a split pea to a hazelnut in size.

Nodule is preferable to the older term "tubercle," as this may be confused with pathological tubercle.

The definition requires some qualification, as size is not the only criterion in all cases, though it is so as a rule. Thus, on the one hand, nodule is employed for the discrete lesions of lupus, tertiary syphilis, and leprosy, even when they are smaller than a split pea; and on the other, many neoplastic growths of small size are called tumors, which from their size alone might be called nodules, for authors are not strict in their discrimination between a tumor and a nodule. Hence it has been proposed to restrict the term to cellular infiltration (granuloma of Virchow) in a nodular form in the skin not larger than a hazelnut. Nodules of this character often go on by peripheral extension and coalescence to an **infiltration** in which the corium is permeated, or replaced, by granulation cells, in diffuse instead of nodular masses, slightly elevated as a rule, with sharply defined borders, and flattish surface. When of inflammatory origin the color is usually red or brownish-red, but small tumors may be of any color. Their size, shape, color, consistency, and course are the points to be specially noticed.

**Tumores.** *Synonyms.*—Tumors; *Fr.*, Tumeurs; *Ger.*, Geschwülste.

*Definition.*—New growths of all kinds, from a pea and upwards in size.

There is no limit to the size of tumors in an upward direction. The shape also is equally variable, though, unless compound, they are generally roundish. They are generally, but not always, well defined; may be sessile or pedunculated, with broad or narrow superficial or deep attachments. They are raised to a very variable extent, movable with the skin, or fixed to deeper parts, and may, or may not, be attended with itching, tenderness, or pain.

Their causes are very various. As they may take their origin from any part of the skin, its vessels or appendages, the color may or may not be altered. The chief points to be observed are, the size, shape, color, elevation, vascularity, mode and depth of attachment, mobility, subjective symptoms, and, where possible, the part of the skin in which they originate.

**Vesiculæ.** *Synonyms.*—Vesicles; *Fr.*, Vésicules; *Ger.*, Bläschen.

*Definition.*—Vesicles are elevations above the surface of the skin, from a pin's head to a hemp seed in size, with free contents of serous fluid.

Vesicles are produced by elevations of the upper layers of the epidermis by fluid, which may be forced upwards from below, either by mechanical or inflammatory pressure. They may arise directly on the surface, as in miliaria; or on the top of an inflammatory base, diffuse or papular, as in eczema. Their contents may be clear, turbid, or more or less blood-stained. They are generally tense, but the large ones may be flaccid; most of them rupture, as in eczema, but in many the contents are either absorbed or dry up without rupturing, as in sudamina or herpes. Their shape is, if discrete, roundish at the base and convex or acuminate at the top, or they may be pitted, as in the vaccine vesicle. They may be quite superficial, as in sudamina, or deep-seated, as in lymphangiectodes; consist of one or more chambers, as in herpes or varicella; be discrete or coalescent. They

are generally inflammatory, but are not so in sudamina or lymphangiectodes; are usually of short duration, and either rupture, or the contents dry up, become absorbed, enlarge into blebs, or pass into pustules. Anatomically, they may be situated between the horny layers, between the mucous and horny layers, or in the mucous layers, while in lymphangiectodes they are in the lymphatics of the corium. As a rule they tend to group in various ways, may remain discrete or coalesce, and being generally acutely inflammatory, are very often attended with burning and itching. The points to be observed are their size, color, contents, base, depth, mode of evolution, course, duration, the subjective symptoms, and, if the contents are evacuated, the condition of the skin beneath.

**Bullæ.** *Synonyms.*—Blebs; *Fr.*, Bulles; *Ger.*, Blasen.

*Definition.*—Blebs are vesicles which are as large as, or larger than, a pea.

Like vesicles, they are generally formed in the middle and deeper layers of the rete, and their roof is formed by the remaining layers of the epidermis, but sometimes the whole epidermis is elevated.

They vary in size, from a pea to a large hen's egg; the smaller and medium-sized bullæ are generally roundish or oval, but when very large, being often formed by several coalescing, they are irregular in outline. They have usually tense, strong walls, and therefore seldom rupture spontaneously, the contents drying up; but they may be flaccid, as in pemphigus foliaceus, and rupture early in their development. The contents are usually clear, straw-colored, consisting of serum, and therefore alkaline and albuminous, but sometimes there is sero-pus, pus, or blood. Bullæ, as a rule, have no areola unless they contain pus, rising abruptly from the healthy skin, but they are usually preceded by a transitory redness. Often no special sensation, except that of tension in the fully formed bulla, attends them; but occasionally, as in dermatitis herpetiformis, there is intense itching. Blebs are the prominent symptom in pemphigus, dermatitis herpetiformis, pompholyx, and herpes iris; are frequent in leprosy, syphilis, and erysipelas; and may be present occasionally in erythema exudativum, urticaria, measles, and in vesicular diseases

such as eczema, herpes, and varicella; in short, they may occur as an accident, so to speak, in almost any acute inflammatory affection of the skin.

The points to be observed are their size, shape, contents, duration, and, after rupture, the condition of the exposed surface.

**Pustulæ.** *Synonyms.*—Pustules; *Fr.*, Pustules; *Ger.*, Pusteln.

*Definition.*—Pustules differ from vesicles and blebs only in containing pus.

Pustules sometimes arise directly, but generally develop from vesicles or papules, and various intermediate conditions are therefore often simultaneously present. They are always of inflammatory origin, and unless blood-stained, of a yellowish color, and have, as a rule, a red areola, sometimes with induration, as in boils; most of them are round and convex, sometimes umbilicated, as in variola, but some are pointed, others flat and irregular, as in ecthyma; these, and indeed the majority, arise in the papillary layer, but they may be formed round the sebaceous glands, as in acne; round the hair follicles, as in sy-cosis; or deep in the corium, as in boils. Their course is generally acute and they usually rupture, the contents concreting into a firm crust, yellowish, greenish, or brownish if blood-stained; or they may dry up, and the crust is then less discolored, and friable. In either case a scar may be left if the process is deep enough. Pustules are often painful and tender, sometimes attended with burning, but seldom with itching. The points to be noted are their size, shape, color, mode of evolution, anatomical position, base, course, and sequelæ.

**Pomphi.** *Synonyms.*—Wheals; *Urticæ*; *Fr.*, Plaques ortiées; *Ger.*, Quaddeln.

*Definition.*—A wheal may be described as a circumscribed edema of the corium, producing a flat elevation of the epidermis at that point.

A wheal may be artificially produced by injecting a drop of water underneath the skin. Usually wheals are the result of an-gioneurotic irritation, external or internal, leading to the sudden outpouring of serum from the vessels; this is followed im-

mediately by a spasmodic contraction of the capillaries. On the spasm ceasing, the released capillaries take up the fluid again, and the wheal subsides. They are very variable in size, from a pin's head to a goose's egg, flatly convex as a rule, but the very large discrete ones are hemispherical; if large from coalescence only, they then form elevated patches. The outline is irregular, often determined by external causes, *e. g.*, scratching. The color is usually whitish in the center with a pink areola, or when the tension is not so great, rose-red all over, less frequently, with an anemic white areola; occasionally they are purple, from hemorrhage into them. They are evolved very rapidly, in a few minutes or even seconds, and as a rule last only a few hours or days, but are occasionally persistent. They may go on to the formation of bullæ, or leave behind them pigmentation, inflammatory papules, or even large lesions, as in urticaria pigmentosa. They are always attended with severe tingling or itching, are the characteristic lesions of urticaria, but may be produced as a local condition, *e. g.*, from the stinging-nettle or rhus poison, the bites of insects, etc. The points to be noted are, their size, color, mode of evolution, duration, sequelæ, and their local or constitutional origin.

## SECONDARY LESIONS.

**Squamæ.** *Synonyms.*—Scales; *Fr.*, Squames; *Ger.*, Schuppen.

*Definition.*—Scales are dry, laminated exfoliations of the epidermis.

Scales may be, and usually are, the result of an inflammation, in which proliferation rather than exudation is the main feature. Or they may be due to preternatural dryness of the skin, as in seborrhea sicca and xeroderma. Or again, they may be the sequel of a previous acute hyperemia, as in erythematous eruptions, especially those of scarlatina and erysipelas, when the most superficial layers of the epidermis are thrown off.

They may be very small and branny, as after measles, or in pityriasis rosea, or in dandruff; or very large and thin, as in pityriasis rubra; they may be in a single layer, as in eczema squamosum; or adherent into crusts, as in psoriasis; silvery, white, or gray, as in the last disease; or dirty yellowish-looking,

as in many syphilids and ichthyosis. They are dry and brittle unless mixed with exudation. When due to inflammation they are usually on a more or less reddened base, unless in the form of desquamative sequela. Their quantity may be very small, or they may be shed literally in quarts per diem, as in severe pityriasis rubra. The points to be noted are their size, color, quantity, being separate or in crusts, their presence as a symptom or a sequela of the lesion.

**Crustæ.** *Synonyms.*—Crusts; *Fr.*, Croûtes; *Ger.*, Borken, Krusten.

*Definition.*—Crusts are irregular dried masses of exudation, or other effete products of disease.

Crusts vary much in appearance, according to their amount and origin. They may be adherent or loose, according to their age and the condition of the surface on which they rest. They may be thin and flat, or thick and craggy, according to the quantity and nature of the exudation from which they originate.

As a rule, crusts are the result of dried inflammatory exudation, consisting mainly of serum, pus, or blood mixed with epithelium.

They may, however, be chiefly composed of fat and epithelium, as in seborrhea, and are then greasy, light yellow when recent, dirty yellow or blackish when old; they are flat and adherent, but can easily be peeled off. Or they may consist of fungous elements, yellow and powdery, as in favus, or claylike, as in tinea imbricata. Inflammatory crusts of serous origin are light yellow, friable, and translucent, as in eczema and impetigo contagiosa in the serous stage, while the purulent crusts of the same diseases are thick, dark, and dirty-looking, and firmer in consistence. In ulcerating syphilids they may be in layers, very thick, firm, and greenish, while blood-crusts are of a dirty red, brownish, or blackish hue. All crusts follow in outline the excoriated surface on which they rest, and when the exudation is free and thin they are soon thrown or rubbed off, while, when it is thick they may get heaped up by the drying of successive layers as the ulcer extends, as in the limpet-shell crusts of rupia.

The points to be noted are their thickness, color, size, consistence, adherence, composition, and the condition of the surface beneath them, for which of course their removal is essential.

**Excoriationes.** *Synonyms.*—Excoriations; *Fr.*, Excoriations; *Ger.*, Hautabschürfungen.

*Definition.*—Excoriations are lesions in which, as a rule, the surface is denuded only as far as the stratum mucosum; they heal, therefore, without leaving scars. The shape, depth, and extent depend upon their mode of production, which, apart from superficial wounds from mechanical causes, is mostly by the nails in scratching; hence they are encountered most frequently and are most developed in pruritic diseases. The excoriations of the nails consist of puncta, which soon get scabbed over, from the decapitation of the follicular prominences of the skin; lines of scratching, superficial or comparatively deep, in which the epidermis is more or less torn up in places; these, when recent, are surrounded by an areola, which may be swollen into a wheal, and excoriated, soon becoming scab-topped papules developed secondarily from the constant irritation of the nails. Other lesions, directly or indirectly due to scratching, are ecthymatous pustules, eczematous patches, enlargement of the neighboring lymphatic glands, and when the pruritus is of long standing, thickening and pigmentation of the skin. All these symptoms go to make up the “scratched skin” in its highest development, but they are not all present except in severe and chronic cases, the number and extent depending upon the vigor of the scratching. Although this “scratched skin” is really a compound of various lesions besides excoriations, the group occurs so frequently that it may, as a whole, be considered to be a symptom of many diseases, such as prurigo, urticaria papulosa of infants, pediculi corporis, scabies, etc. The position, extent, and arrangement of the lesions are of diagnostic importance in a large number of instances.

**Rhagades.** *Synonyms.*—Fissures; *Fr.*, Fissures; *Ger.*, Rhagaden, Hautschrunden.

*Definition.*—Rhagades are linear cracks in the skin, whether due to injury or disease.

Fissures are produced in the parts where there is most movement, whenever, as the result of inflammation or other cause, the elasticity of the skin has been impaired. Their most frequent position is on the palmar and plantar surfaces of the hands and feet, the angles of the mouth and anus, and the flexures generally. They usually occur along the natural lines of flexion or other movement, as may be seen on the palms and soles in the so-called eczema rimosum, at the angles of the

mouth and anus in congenital syphilis, or in chronic eczema of the lips; but, of course, any other cause, such as local irritation, producing tension, with loss of elasticity, will produce them. They are painful on movement, especially when they extend to the corium.

**Ulceræ.** *Synonyms.*—Ulcers; *Fr.*, *Ulcères*; *Ger.*, *Geschwüre*.

*Definition.*—Ulcers are losses of substance of the skin, extending into the corium and produced by disease.

The size is quite indefinite; the shape variable, the most common being round, but it may be reniform, irregular, or serpiginous. They may be deep or shallow, with steep or sloping sides and smooth or irregular base; the edges may be sharp or rounded, everted or undermined; the surface bleeds readily, is clean or sloughy, covered with pus or serum only; most crust over if left to themselves, but some keep up a continual discharge of varying amount, which may be offensive or not, and is usually grayish or yellowish, but sometimes sanious. Apart from injury, they are usually the result of lupus, syphilis, struma, lepra, malignant tumors, boils, or carbuncles. Varicose veins are a favoring condition for their occurrence on the lower extremities, where they are very common. They are generally painful, exquisitely tender, and their duration and course are very variable, depending upon a variety of conditions; their tendency, unless malignant or circumstances are unfavorable, is towards healing, but they always leave a permanent scar. The points to be noted are their position, size, shape, depth, edge, sides, floor, secretion, and course.

**Cicatrices.** *Synonyms.*—Scars; *Fr.*, *Cicatrices*; *Ger.*, *Narben*.

*Definition.*—Scars are connective tissue new formations replacing losses of substance, which extend as far as the corium. Whatever may be the cause of loss of substance, whether injury or disease, healing can only take place by cicatrization, in which the hairs, glands, and papillæ are absent, but there are vessels and nerves; the resulting scar varies according to the depth of the lesion.

The lesion need not, however, produce ulceration, as in some forms of lupus and syphilis, when the normal skin is infiltrated

and replaced by cells, which may undergo absorption, and the result is a scar, without any breach of surface; or when the skin is over-distended, as in *lineæ albicantes*; or when there is pressure, as in *favus*, in which the growth of the fungus digs into the skin. All these are examples of atrophic scarring, and the cicatrix is thin, white, glistening, and pliable. When the ulcer extends deeply into the tissues, as in burns, the scar will be contracted, thickened into bands, and adherent to subjacent tissues, and there are intermediate conditions. The scar may also be raised much above the surface, from increase of connective tissue, and form "hypertrophic scarring," or go on to the condition known as keloid. They are thus of all shapes, sizes, and thicknesses, raised or depressed, in bands, knots, lines, or spots, smooth or puckered. Their color is usually whitish and glistening when they are old, but they are red at first, and may remain so, or become purplish or pigmented. Their red or purple color may be due to dilated blood-vessels coursing over them. Scars are not often attended with subjective symptoms, but may itch or be painful, especially when a nerve twig is implicated in them.

The history of scars should always be carefully inquired into, as, when not due to injury, they are often of great diagnostic importance, the great majority being due to lupus, syphilis, or struma. The points to be noted are their position, size, shape, color, texture, and mobility.

**Stains.** Various eruptions leave stains behind them; these are generally produced by the escape of blood-coloring matter during the inflammatory process. Syphilids are especially noted for this, but many others also, as lichen planus, leave very dark pigmentation, while exudative erythemata, psoriasis, and many others, as a rule, leave only a red mark, which passes off in a week or two.

### SPECIAL LESIONS.

There are a few lesions of special characters, which do not come under any of these heads, such as warts, horns, burrows of the *acarus scabiei*, etc., which will be explained in their special sections.

## GENERAL SYMPTOMS.

The several lesions having been examined individually have now to be considered collectively. A single group, or separate area of disease, is "a patch," while the patches taken altogether constitute the eruption.

**Distribution—Cleavage.** The arrangement of the lesions in the patch, and the relations of the patches to each other, are governed to a certain extent by laws; and although we do not yet thoroughly understand them, some light has been thrown on the subject by the studies of C. Langer \* and S. Swerchesky † with regard to what is known as the "cleavage" of the skin; while O. Simon ‡ has treated the whole subject.

When a round awl is thrust into the skin, Langer found that the skin was split into linear clefts in most parts, though in some a triangular or ragged hole was produced, *e. g.*, on the scalp, forehead, chin, and epigastrium. This he called "cleavage," and it was said to be complete in the first case and incomplete in the second; and in the difference depended, he found, upon the arrangement of the connective tissue bundles, which in complete cleavage ran mainly in one direction, and in incomplete cleavage ran pretty equally in different directions. Further, when the whole body was thus punctured in rows at equidistant intervals, the surface was mapped out into lines which indicated the general direction of the fibers in each region, and he found that these lines of cleavage ran, for the most part, obliquely to the axis of the trunk, sloping from the spine downwards and forwards, in the direction of the ribs at the upper two-thirds, but more horizontally lower down. In the limbs they were for the most part transverse to their longitudinal axis, and there were sub-variations in different regions, *e. g.*, circular girdles at the shoulder. The blood-vessels also were found by Tomsa to form circulatory planes where the cleavage was uniform, but where it was indefinite, the vascular trunks

\*Langer, "Sitzungsberichte der kais. Akad. d. Wiss.," Wien, 1861, Bd. xliv. and xlv.

† *Annales de Syph. et Derm.*, July, 1871.

‡ "Die Localisation der Hautkrankheiten histologisch und klinisch bearbeitet," mit 5 Tafeln. Berlin, 1873.

were very tortuous, and ran vertically upwards, forming globular areas of distribution. This cleavage, or more directly the vascular distribution consequent on the cleavage, has been found

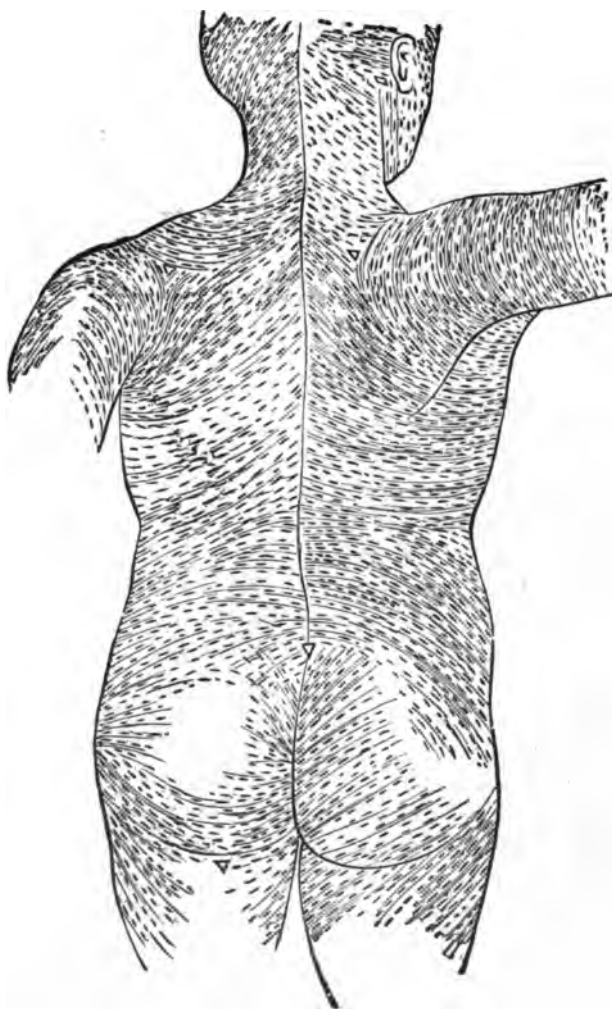


Fig. 9.—Diagram of the lines of cleavage of the skin (Langer).

to correspond in many respects with the arrangement of the groups of individual lesions. These may take various forms, of which circles, segments of circles, concentric circles, with or

without punctate centers, and ellipses are some of the most common, while connecting lines of eruption between the papules also run in the cleavage direction.

The **vaso-motor centers** which preside over different areas are, in my belief, an important element in governing the distribution of eruptions. One of the most important of these vascular areas is that of the head and neck down to just below the clavicle, the forearm, back of the hand, and the lower two-thirds of the upper arm on the extensor side, sloping down to the lower third on the inner side. This distribution is preserved in the great majority of cases of xeroderma pigmentosum, and it is usually accounted for by saying that it is the region exposed to the sun and air. But this is not strictly true; the lesions extend beyond the exposed part, and an exactly similar distribution may often be seen in eczema in adults of both sexes where there has not been any exposure either so low in the neck or so high in the arms. Another area is in the lower part of the back and upper part of the thighs. Many cases of extensive moles have this distribution, called sometimes the "bathing-drawers area." Counter irritation over the cervical and lumbar enlargements, respectively, often exhibits a distinct influence on inflammatory eruptions in these regions. The part of the cheeks called by Hutchinson the "flush patch" is another such area. These are only examples, as the subject cannot be pursued further here. I have observed, however, that the area of anesthesia, after cord or single nerve injuries, often corresponds with the distribution of inflammatory and other eruptions, and both neurology and dermatology might give to each other much assistance by the further study of these relationships. Dr. H. Head's diagrams of the areas of distribution of herpes zoster should also be studied.

Eruptions may be symmetrical or unsymmetrical, with regard to the two halves of the body; unilateral, especially when owning a direct nervous distribution, as in herpes zoster, some cases of morphea, ichthyosis hystrix, and some of the eruptions of anesthetic leprosy. Other terms that require explanation are "universal," which signifies, not only that every region is affected, but that there is no intervening healthy skin between the lesions, as in pityriasis rubra; while an eruption may be said to be "general" when every region is affected, while there are

some healthy areas, as in the worst cases of psoriasis. On the other hand, an eruption may be "localized" to one or two regions; it may be "aggregate," *i. e.*, crowded together; or "disseminate," *i. e.*, scattered irregularly over the body. Patches or lesions may also be "discrete," *i. e.*, separate; or they may be "confluent." If in circular patches, or segments of such circles, the eruption is called "circinate"; if in rings, "annulate"; or if two rings meet and coalesce they are always broken at the point of contact, and "gyrate" figures are produced, as may be seen in vegetable parasitic eruptions. When a disease creeps slowly at one border, clearing up at the older part, it is said to be "serpiginous," as in the "serpiginous ulceration" of tertiary syphilids; or if the border is very abrupt, it may be called "marginate," as in erythema marginatum; while sharply defined patches are called "circumscribed." Small lesions the size of a millet seed are called "miliary," and when the size and shape of a split pea, "lenticular." There are many other qualifying terms, but their meaning is obvious. Such are those relating to the "age" of the patient, *e. g.*, prurigo senilis; the "general color" of the rash, *e. g.*, erythema iris, or lichen ruber; the "special region" affected, *e. g.*, eczema palmare; the "age" of the rash, "acute," "chronic," "transitory."

Any others in less common use will be explained, if necessary, as encountered in the several diseases.

In this section, therefore, the points to be noted are the extent and general arrangement of the eruption, the shape and size of the patches, and the relation of the individual lesions to each other; their aggregation or otherwise, and the duration of the whole rash; its general course, and the age of the patient.

### SUBJECTIVE SYMPTOMS.

Subjective symptoms may be present or absent, and of all grades of intensity. Pain, tenderness, heat, tingling, itching, and smarting are the symptoms often met with, chiefly in inflammatory disorders; and pain is the chief symptom in phlegmonous inflammations and new growths of malignant character. The most common symptom is itching, which may be very slight or severe, and may be due to the direct effect of the lesion, or re-

flexly neurotic, as in many forms of pruritus. Formication is a modification of pruritus, and the sensation of tingling is closely allied to it. Anesthesia or loss of sensibility, and hyperesthesia or exalted sensibility, are rarely met with in diseases of the skin. Hypertrophies, atrophies, hemorrhages, and benign new growths are seldom attended with subjective symptoms.

## ETIOLOGY.

THE subject of the causes of cutaneous disease is a complex one and must be discussed under several heads.

A disease of the skin may be symptomatic or idiopathic. It may be so entirely symptomatic as not to require separate treatment apart from the general condition to which it is due, as in the exanthematic eruptions belonging to the acute specific diseases, such as scarlatina and measles, or the early eruptions of the chronic specific diseases, such as syphilis and leprosy, polymorphous erythema, the xanthoma of the diabetic, the eruptions of scurvy, etc., or, while it may be due to a general or local internal derangement, both the skin and the offending organ must be treated as in gouty eczema, dyspeptic acne, and the like. In idiopathic diseases the departure from health either originates in, and is confined in its effects to, the skin itself, or appears to be so, as not infrequently the real cause eludes our observation. This includes all local diseases, *e. g.*, many hypertrophies and atrophies, and those dependent on external causes generally.

The causes predisposing to or directly producing cutaneous disease may be classified into:

*Hygienic conditions*, general and personal, and the

*Constitutional conditions*, family and personal, to which the individual may be subjected.

### GENERAL HYGIENIC CONDITIONS.

The general hygienic conditions are climate, soil, abode, and seasons.

*Climate*.—It is very difficult to show the exact influence of climate, and few are only a matter of temperature, as with it so many other conditions are changed, such as race, habits, soil, diet, etc.

Yaws, leprosy, one form of elephantiasis arabum, phagedena tropica, Delhi boil and its congeners, are mainly tropical; verru-

gas is a disease of Peru; pinta, of Central America; tinea imbricata, of Oceania; pellagra, mainly of Northern Italy.

Eczema is nearly always aggravated by sea air, and exposure to northeast winds will often determine an attack in a predisposed person; and indeed, even without exposure the patient can often recognize by his sensations a deleterious change of wind.

*Soil.*—With the exception of that due to malaria, and even that is only indirectly due to soil, little is known with regard to the influence of soil on skin disease; urticaria, herpes febrilis, and melanotic pigmentation are not infrequent in connection with ague, especially in severe forms. Less common are roseola, —a large macular erythema, either on the limbs only, or general, and sometimes hemorrhagic,—petechiæ, and other forms of purpura; while boils, carbuncles, and noma are occasionally met with.\*

*The Abode* may be insanitary and close, and conduce to strumous affections; pemphigus neonatorum generally, and boils often, occur where the air is contaminated with sewer gas or other foul emanations, and in any case nutrition and vital resistance are lowered, and the occurrence of skin and other diseases favored.

*Seasons.*—These exercise considerable influence; thus, in the spring, erythema multiforme is particularly liable to occur or recur; while, on the supervention of warmer weather, hydroa æstivale and urticaria papulosa, which had been quiescent in the cold weather, begin to recrudescence; psoriasis also often becomes active in the spring. Prurigo varies; some cases being worse in summer, some in winter. Prickly heat is only a disease of very hot weather. In autumn erythema multiforme is only a little less common than in spring. In winter many diseases are aggravated, notably lupus, ichthyosis, eczema, and many other inflammatory diseases; while chilblains, pruritus hiemalis, and

\* Brocq records a case of papulo-vesicular eruption on the nose of a lady which waxed and waned at periods corresponding with a double tertian ague. After resisting all his efforts for weeks it disappeared in a few days with quinine. The patient had never had distinct ague, but lived in a malarial country for several months in each year, and Brocq thinks, with Verneuil and Merklen, that there is a group of skin eruptions worthy of being called "Paludides."—Brocq, *Annales de Derm.*, vol. viii., 1896, p. 1.

Raynaud's disease are especially diseases of cold weather.\* There is, moreover, a summer pruritus, which is less common than the winter form. There is also a set of † recurrent eruptions of variable clinical characters some of which recur in summer and some in winter, while occasionally they overlap.

Sudden alternations of heat and cold, and extremes of either, are fruitful exciting causes of a large number of eruptions, producing them either *de novo* or by recrudescence.

**Personal hygiene** includes many causes of disease, such as:

*Occupation*, which often plays an important part, chiefly in the production of what are called professional dermatoses; thus there is the large class of trade eczemas, such as baker's, grocer's, bricklayer's, barmaid's, and washerwoman's "itch," due either to handling powders or to always having the hands wet. Workers in chemical or dye factories, or with arsenic or bichromate of potash, are liable to dermatitis in various forms, from the irritating influence of the materials in use. Callosities from hard manual labor are well known. Various sweat eruptions are seen in those exposed to heat and moisture, as in pianoforte-makers.

*Clothing* may be unsuitable, either in make or material, *e. g.*, badly made boots produce corns or blisters; tight bands produce chafing or excoriations; dyed stockings often excite papular and eczematous eruptions; flannel excites pruritus in some skins, and if worn too long without washing favors the development of tinea versicolor and seborrhea corporis.

*Uncleanliness* is a favoring rather than an exciting cause of cutaneous disease, especially for parasites, both vegetable and animal. On the other hand the constant stimulation of the skin by the too frequent use of soap, especially if not carefully made, is liable to excite eczematous eruptions. Washing without great care in drying is a frequent cause of chapping, and vapor baths may excite malaria. Where eczema exists it is nearly always aggravated by water, unless it is quite soft like rain or distilled water.

\* "Cold as an Etiological Factor," Corlett, *Amer. Jour. Cut. Dis.*, vol. xii., 1894, November No., and *Monatsh.*, vol. xxiii., 1896, p. 531.

† "Winter and Summer Recurring Eruptions," by the author, *Brit. Jour. Derm.*, vol. xii., 1900, p. 39.

*Food*, improper in quality or quantity, is an important factor in the production of a large number of diseases. It may do this, if inadequate in quantity or quality, by lowering nutrition generally, or by its directly irritating effects on the gastro-intestinal mucous membranes. Or it may be of a quality which promotes fermentation in the alimentary substances in the stomach. As examples may be given the use of starchy food in young infants, which often remains undigested, and acts injuriously, both by lowering nutrition and acting as an irritant, especially when there is intestinal catarrh; the effect of taking food containing branny particles, such as brown bread, oatmeal, etc., on eczematous and urticarial patients; and the influence of beer, pastry, etc., in exciting fermentation. More direct is the gastric irritation produced by shell-fish, especially mussels, which excite violent urticaria in some people. Then again certain diseases are ascribed to food, as pellagra to the consumption of decomposed maize, leprosy to decomposed fish, but the latter theory is not generally accepted.

*Medicines*.—Many drugs produce erythematous and urticarial eruptions when taken internally, which are referred to in detail in the section on drug eruptions; and a few, like iodine and bromine, produce eruptions of a special character.

*Irritants*.—Many drugs, plants, and other substances, when brought into contact with the skin, excite inflammation in it. Cantharides, turpentine, mustard, croton oil, rhus toxicodendron, and arnica may be cited as examples. *Vide* Dermatitis venenata.

*Scratching* is only another form of external irritation; the lesions it produces have already been detailed under Excoriations. It is, however, only where the itching is very severe, as in that produced by scabies, pediculosis, or prurigo, that the worst effects of scratching are produced. In senile pruritus, for instance, the skin is rarely injured to any material extent.

*Contagion* is responsible for not a few skin diseases; animal and vegetable parasitic diseases, impetigo contagiosa, the exanthemata, early syphilids, glanders, and malignant pustule, are some of the contagious or inoculable diseases.

### RACE AND FAMILY CONSTITUTIONAL CONDITIONS.

*Race*.—Very little is known of the effect of race apart from endemic conditions, special customs, and personal habits of different races. Negroes are certainly more liable to yaws and keloid than the white races, and according to Morrison\* of Baltimore, less liable to lupus and acne, and their skins are less sensitive to external irritation. The grave affection, "idiopathic multiple pigmented sarcoma," appears to occur chiefly among the Jews, and those mostly from Poland and Galicia; but this may be more a matter of habits and of local causes than a racial peculiarity. Leukoderma also is more common in colored races; but here again they are more exposed to the sun, and the contrast makes the affection more noticeable.

*Heredity*† exercises an important influence in the production of disease, but its influence is considered to have been formerly overrated. Thus the heredity of leprosy is now a disputed point. Some explain away its supposed heredity by assuming either that the disease is communicated by contagion from one member of the family to another, or that they are all subjected to the same environment, which is the real etiological factor. In other cases it is only a similar tissue proclivity that is transmitted, and if the pathogenic microbe, *e. g.*, the tubercle bacillus, is excluded, the supposed hereditary disease will be avoided. Even admittedly hereditary diseases vary much in the degree of proclivity induced thereby; in some, as syphilis, the disease, when in an active condition in the parent, is almost certain to be conveyed to the child; in others, as psoriasis and ichthyosis, the transmission is uncertain. If there are several children, some will probably be affected while others escape; on the other hand, in the majority of cases of these diseases there is no evidence of heredity. Eczema is probably not at all hereditary; but states predisposing to it, such as gout, feeble digestion, etc., are so. No doubt, too, some skins resent irritants more readily than others. Some diseases are only occasionally hereditary, such as

\* "Personal Observations on Skin Diseases in the Negro." A paper read before the Amer. Derm. Soc. Congress, 1888.

† "The Pedigree of Disease." by J. Hutchinson, London, 1884, may be consulted for a more complete account of the subject.

xanthoma, premature baldness, tylosis palmæ. In some instances of heredity there is a tendency to be limited to one sex in the family through several generations.

*Family prevalence* may or may not be associated with heredity; and here again the family liability is often confined to one sex. Of this, the rare affection xeroderma pigmentosum is an example—*e. g.*, in a family of eight boys and five girls, seven of the boys and no girls were affected, while no instance of heredity is known. Ichthyosis is another example in which there may or may not be heredity and family prevalence often limited to one sex.

### PERSONAL CONSTITUTIONAL CONDITIONS.

*Sex* exercises a certain influence. This may be dependent upon anatomical peculiarities. Thus, it is obvious that sycosis can only occur in a male, and Paget's disease of the nipple in a female. On the other hand, it is not always so—*e. g.*, lupus erythematosus is much more common in women, and epithelioma is more common in men. The different habits of the two sexes no doubt also play a part. Thus, the minor form of acne rosacea is more common in women, from their greater liability to dyspepsia and constipation, owing to their sedentary habits, and partly, perhaps, to uterine derangement being another exciting cause; on the other hand, the worst forms are seen in men, from their more frequent intemperance and exposure to severe weather. The special conditions affecting women at different periods of life are described under the effects of age.\*

*Age.*—The influence of age may be considered under two aspects. First, as regards merely the duration of the life of the individual; and, secondly, as regards epochs or events which occur at different periods. Speaking generally, in early life there is a greater tendency to the more acute forms of inflammation and to overgrowth; in old age, to lower forms of inflammation and to degenerative and atrophic diseases. In infancy, eruptions are more likely to take a pustular form, and from the ease with which the alimentary canal is deranged there is a greater liability to eczema or urticaria.

\* Guibout, "Leçons cliniques sur les Maladies de la Peau," 1879. pp. 1000, divides skin diseases as they affect childhood, adult life, and old age

In the first three months of life congenital syphilis generally shows itself; at the end of the first year ichthyosis generally begins, though it may be earlier, and even be congenital. In the second year begins xeroderma pigmentosum. Psoriasis is very rare under three years old, and not common under five years. Ringworm of the head occurs in childhood only, for the most part, while tinea versicolor is hardly ever seen in childhood; on the other hand, vegetable parasitic diseases are rare after fifty. Acne rosacea begins to be prevalent about thirty, just when the tendency to acne vulgaris has ceased. Among animal parasitic diseases, pediculi corporis are rare in children, while pediculi capitis are almost universal among the children of the poor. Lupus vulgaris generally begins in childhood; lupus erythematosus rarely begins before the patient is grown up; impetigo contagiosa is more common in childhood, chiefly because children are more exposed to contagion. Cancerous affections are uncommon before middle age.

In connection with age there are certain events in life which often exert an influence; among these

*Vaccination* may be mentioned. Although not a natural process, its practice is so general as to be almost equivalent to it. The influence of vaccination occupies a large place in the public mind as an etiological factor in skin diseases, but only a very small one among medical men. That it is directly or indirectly responsible for some skin troubles cannot be doubted, and they are discussed under their appropriate headings; but the majority of cases ascribed to vaccination are only due to confusing the *post* with the *propter hoc*.

*Dentition* is another process in early life which is much overestimated as a cause of skin disease, even by the profession, by whom it is too often set up as a "bogy" for the ills of infancy. It has little if any direct influence, but there is doubtless a condition of unstable equilibrium, just before the eruption of a tooth, in which the child is easily upset, and during which any skin disease present, such as eczema or urticaria, is likely to be aggravated.

*Puberty*.—At puberty the glandular and hairy systems take on increased activity, and the line between physiological and pathological activity is liable to be overstepped. Hence disorders of the sebaceous glands arise, such as seborrhea, comedones, acne

vulgaris, bromidrosis, and hirsuties in girls are met with; at this time, too, many date their first onset of psoriasis and lupus, though both may begin earlier. Some diseases, such as ichthyosis and eczema, dating from early childhood, sometimes undergo amelioration.

The next four relate to women only.

*Menstruation* only produces eruptions when it lowers nutrition by the excess of discharge; but many eruptions, such as urticaria, acne vulgaris or rosacea, and eczema, are aggravated a few days before the menstrual flow occurs; while a few, such as herpes labialis, an erysipelas-like eruption of the face, erythema circinatum on the back of the hands, fugacious erythema elsewhere, and purpura, have been observed to recur at each period, without anything abnormal in the menses being present. In the absence of the catamenia, hematidrosis has been observed, being possibly a vicarious phenomenon.\*

*Pregnancy*.—In connection with this state may be noticed the so-called herpes gestationis (see Dermatitis herpetiformis), and the fatal impetigo herpetiformis. Urticaria is not uncommon, and pruritus without any rash is often most troublesome, either general, or at the vulva only. Eczema is less frequent, chloasma is very common, and herpes febrilis is rather common. On the other hand, eczema or psoriasis may clear up during pregnancy, while most of the eruptions which occur during pregnancy clear up soon after parturition.

*Lactation* often exercises an influence, doubtless by lowering nutrition; thus women liable to psoriasis are very likely to have a fresh outbreak at that time, or an old attack aggravated. This is also true of eczema and other diseases dependent on lowered nutrition.

*Climacteric*.—At this time many diseases crop up or are aggravated, among which acne rosacea, seborrhea capitis with consequent baldness, and the ubiquitous eczema, may be specially mentioned.

*Constitutional predisposition* occurs apart from either heredity

\* See also Danlos, "Thèse de Paris," 1874; Deligny, *Le Concours Médical*, April 14, 1888; a good abstract in *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. vi. (1888), p. 315; *Brit. Med. Jour.*, March 3, 1879, quoting Schramm and W. Wagner; Grellety, translated in Wood's "Medical and Surgical Monographs."

or family prevalence, although often associated with those factors, and exercises more frequently an indirect rather than a direct influence. This may be seen in the liability of many persons to eczema on exposure to irritating influences, either external or internal, which would not affect the majority of people. Probably this is analogous to the liability many people show to catarrh of the mucous membranes, which is often to a great extent restricted to different regions in different people, *e. g.*, in and on the nasal mucous membranes, the pharynx, larynx, bronchi, or even stomach or intestines. How much is congenital, and how much acquired, is difficult to say in many cases; but I am a strong believer in the skin itself acquiring a bad habit, so to speak, and reacting to deleterious influences varying in different people, probably through the vaso-motor nerves. Chronic urticaria and allied conditions are examples of this, and many striking instances of the sensitiveness increasing by the repetition of the exciting cause are related amongst the drug and irritant eruptions.

It is certainly the case with many patients as regards eczema, especially when they have just got over an attack, and probably the liability to recurrence of erythema multiforme, hydroa, and of psoriasis, and to a less extent lichen planus, may be similarly explained. With regard to some of these diseases another possible explanation is that pathogenic microbes have periods of quiescence and activity, the latter stirred up sometimes, perhaps, by external influences.

Certainly the chance of permanent cure largely depends on the patient being able to avoid the exciting causes of the several diseases, for a considerable period. I am, however, no believer in the so-called herpetism of Bazin, or the dartrous diathesis of Hardy, except in the above very limited sense. Bazin's arthritic diathesis is so far true that gout and rheumatism have an undoubted predisposing influence in some diseases, *e. g.*, eczema, though I believe even this has been pushed too far by his school; and that many cases, *e. g.*, of scleroderma, pityriasis rubra, etc., are associated with rheumatism, because they own a predisposition to a common cause, *viz.*, *chill*, and not because they stand in the relation of direct cause and effect. The greater liability of certain persons to parasitic diseases, which is admitted by most authors, is explicable in another way. The predisposition to

vegetable parasitic diseases lies probably in some anatomical peculiarity of the skin or hair follicles, or, as in *tinea versicolor*, in a greater tendency to perspire; while, with regard to animal parasites, probably some peculiar odor of the individual exercises an attraction on the insect.

Another point is that the same cause will, in one person, excite one kind of eruption, while in another a totally different form will be produced, though the same disease will generally be seen in the same individual under similar influences.

*Internal Diseases.*—In all cases of cutaneous disease defects in health, whether dependent upon disease in one part or in the whole of the organism, require careful investigation. Any lowering of the general vitality, either from defects in assimilation, defective nutrition—often the result of the first—or defective nerve power often shown in increased irritability, is an important predisposing factor of cutaneous as well as of other diseases.

The **digestion** should always claim our first attention. The diseases most directly connected with disturbance of the alimentary canal are urticaria, acne rosacea, and eczema; pruritus, both general and local, and all inflammatory diseases are liable to be aggravated by it. The effects of irritants from food and medicine have already been considered.

It is often difficult to separate functional disorder of the *liver* from that of the alimentary canal, as they are generally associated together more or less. The disease of the skin most directly associated with that of the liver is xanthoma, which in its generalized form, in an adult, is almost invariably associated with chronic jaundice. Severe pruritus is common, pruritus ani and urticaria being generally due to it, and urticaria is not infrequent in jaundice, or even in derangements much less severe than this.

*Diseases of the Kidney.*—Albuminuria is not a productive cause of skin disease; in my experience pruritus, urticaria, dermatitis herpetiformis, and as a consequence of scratching, ecthyma, and eczema in a few instances, are most directly associated, chiefly with the granular contracted kidney in the earlier stages, in which the general lowering of vitality also has a part, as well as the albuminuria. Defective kidney elimination is a probable

predisposing cause of senile eczema, even when there is no albuminuria, while the vulnerability of the senile degenerated skin to microbic invasion is another factor to be borne in mind.

In the more advanced stage of Bright's disease, especially of the granular form,\* purpura, and, more important, a diffuse erythema, are not rarely observed. Huet of Holland first drew attention to uremic erythema, recording twenty-seven cases. After him, Bruzelius of Denmark, many French observers, Pye-Smith, Le Cronier Lancaster, and Thursfield have written about it.

The most characteristic eruption occurs in fingernail-sized erythematous discs, but it may be morbilliform, scarlatiniform, or patchy at first, but in any case it speedily becomes a diffuse red, superficial dermatitis, often universal, and generally followed by desquamation of the whole body surface in large flakes, leaving the skin thickened and red; or eczema may develop and vesicles, bullæ † or pustules may be produced. As a uremic phenomenon it is of grave significance, unless the uremia can be successfully combated for a time. In one of my cases this was accomplished, although uremic convulsions had occurred, and the patient made apparently a good recovery, and went about with only slight albuminuria. Subsequently she developed a diffuse and very extensive but not universal lupus erythematosus of the head, face, and trunk, but she lived for five months after the uremic erythema. Other cases of lupus erythematosus with albuminuria are on record.

For further details see Thiebierge's and Thursfield's paper on the whole subject.‡

Bullous eruptions in connection with uremia have been re-

\* Colcott Fox reported a case in an old woman with granular kidneys in whom hemorrhagic erythema developed seven days before death, and went on to a universal severe purpura with melena and retinal hemorrhages.

† A. Barrs, *Brit. Jour. Derm.*, January, 1896, p. 9, relates the case of a uremic bullous eruption.

‡ "Des Relations des Dermatoses avec les Affections des Reins et l'Albuminurie," G. Thiebierge, *Annales de Derm. et Syph.*, vol. vi. (1885), pp. 424, 511. He gives extensive references up to date. Since then Chartier's "Thèse de Paris," 1889, Lancaster in *Clin. Soc. Trans.*, 1892, and Thursfield's paper in the *Medico-Chirurg. Trans.*, vol. lxxxiii. (1900), and the discussion, p. 235, and full biography, may be especially mentioned.

corded by Murchison, Duckworth, Barrs, and Persy. The last is the most conclusive of the relationship of the two diseases, as a bullous eruption on the lower limbs occurred on two occasions along with uremic convulsions and coma. Pityriasis rubra has also been observed in a few cases towards the end of Bright's disease (chiefly granular kidney), but there are many more in which Bright's disease has developed towards the end of pityriasis rubra.

Toxins in the blood acting on the vaso-motor centers is the most probable pathogenic theory of all these rashes.

In **diabetes**, Kaposi,\* in a paper on this subject, found xerosis, pruritus, urticaria, acne cachecticorum, roseola and erythema, eczema (especially of the genitalia), balanitis and balanoposthitis, and vulvitis, boils and carbuncles, gangrene, perforating ulcer of the foot, and to these must be added the rare xanthoma diabeticorum, the so-called diabetic bronzing, although the diabetes is often a late symptom.

*Other Urinary Constituents.*—Of excess or deficiency of other urinary constituents no general statement of etiological value can be made.† Bulkley's paper, founded on 2000 pretty complete urinary analyses from 569 patients in his private practice, is chiefly remarkable for its negative aspects.

Only 26 patients showed albuminuria, 15 glycosuria. The most recent changes were, in their order of frequency, an excess of amorphous phosphates, oxalate of lime, uric acid, urates, triple phosphates. The variations in the quantity of urea, both in excess and deficiency, were less than might be anticipated, taking two per cent. as the normal average. In discussing the urine in eczema, psoriasis, acne, pruritus, etc., the same discrepancies were present, and no general deduction could be drawn beyond showing that "there are errors of nutrition and metabolism in many patients with skin diseases."

On the other hand, skin diseases may lead to disease of the kidneys; thus chronic universal dermatitis in any form is liable to lead to albuminuria just before the fatal termination; and

\* *Wiener medicinische Presse*, No. 23, December, 1883. Abs. in *Annales de Derm. et Syph.*, vol. v. (1884), p. 28.

† "Imperfect or Deficient Urinary Excretion as observed in connection with certain Diseases of the Skin," by L. D. Bulkley. Reprint from *Amer. Derm. Trans.*, 1899.

Augagneur cites many cases confirming the opinion that suppurative dermatitis may induce nephritis. Temporary glycosuria is sometimes seen in association with eczema, but here they probably only own a common cause.

*Diseases of the Respiratory System.*—Although these can scarcely be considered causes of skin disease, spasmodic asthma is sufficiently often associated with cutaneous disease to show that there is a relation between them, but probably only that of common origin. Bulkley\* gives a very complete *résumé* of our knowledge of this subject. Urticaria, eczema, and ichthyosis are the diseases associated with true spasmodic asthma in my experience. Gaskoin also connects psoriasis with it; but this is not in accordance with either Bulkley's or my own experience. Bulkley also, in 948 cases of acne, found 7 with asthma. This would scarcely imply more than coincidence. The occurrence of herpes febrilis with croupous pneumonia is due to the onset of the latter disease being generally ushered in with a well-marked rigor.

*Diseases of the Circulation.*—The most important is that sluggish circulation of the blood in the extremities, and perhaps also in the nose and ears, sometimes called the "chilblain circulation,"† in which the hands and feet are habitually cold, of a more or less livid redness, and not infrequently moist also. In this condition Richardson has shown that, while the heart is apparently acting strongly, the tension in the radial pulse may be so low that it is extremely difficult to get a sphygmographic tracing. This is not only a strongly predisposing cause for chilblains, and their occasional sequel, angiokeratoma, but also for lupus erythematosus, one form of which Hutchinson calls "chilblain lupus." He also relates three interesting cases in women with feeble circulation in which there were diffuse local congestions of the face, hands, and feet, with tendency to ulceration and general failure of nutrition. *Vide* Dermatitis recurrens hiemalis.

In *Peripheral Ischemia* the blood is unable to enter the capillaries, as seen in "dead or waxy fingers," and in Raynaud's disease; *obstruction* to the general circulation, such as occurs in

\* *Brit. Med. Jour.*, November 21, 1885.

† An extreme instance is depicted in Plate 32 of Hutchinson's *Archives of Surgery*, vol. iii., 1891.

emphysema and mitral disease, may manifest itself in the skin as marked telangiectases on the face; while *local obstruction*, such as varicose veins, predisposes to eczema, ulcers of the lower limbs, pigmentation diffuse or in "orange stains," and to elephantiasis, though in this lymphatic obstruction must also concur.

*Chills* as an exciting or aggravating cause of dermatitis of various kinds, at one time universally accepted, is now often denied, since so many skin inflammations formerly thought to be of nervous origin are with more probability ascribed to micro-organisms or their toxins. Although the explanation may be different the fact remains, and in my belief cannot be disputed in many instances. It seems to me probable that in the reaction following a chill of a large surface of the body, the blood which was driven inwards will return with increased force, draining the viscera for the time being, and leading to the absorption of toxins from the intestine or other viscus, which may excite a more or less extensive dermatitis, which varies either with the difference of the toxin or the special vulnerability of the individual. The rôle of toxins and of the nervous system in the production of skin eruptions is set forth in the section on Pathology.

## PATHOLOGY.

THE pathology of diseases of the skin follows the same laws as those of other tissues, modified by the special differences from other structures in the normal anatomy of the skin. The pathological processes—anemia, congestion, inflammation, hypertrophy, atrophy, and neoplastic growths—are all represented in the various diseases of the skin, though anemia only produces trifling functional derangements, such as pallor and coldness of the surface, and sometimes cold sweating. In addition, owing to its exposed position, parasites, both animal and vegetable, are much more frequent in comparison. The vegetable parasites which are known to produce disease belong for the most part to the hyphomycetes or fungus family, but there is no doubt that the schizomycetes, to which bacteria and micrococci belong, play a more important part in the production of many inflammatory diseases and even apparently new growths, especially of the granuloma class, than has, until recently, been suspected. At the same time, micrococci are so ubiquitous that, although their invariable presence in the skin structures may be demonstrated in any particular disease, it is not until pure cultures of them have been obtained, and the disease reproduced by them, that it can be considered proved that they are the true morbid agents, although the suspicion may be very strong on other grounds.

The diseases in which a schizomycetic microbe is known to be the cause are those due to pus cocci, those due to the seborrheic bacillus, to the tubercle bacillus, leprosy bacillus, and the rarer diseases, anthrax, glanders, and rhinoscleroma. There are still a larger number in which a microbic origin is a practically certain inference, but the organism has not yet been isolated and demonstrated as the *fons et origo mali*.

Psorosperms are no longer considered to be pathogenic agents in the skin, the bodies mistaken for them having been proved to be metamorphosed epithelial cells.

There can be no doubt that the bacillary products called *Toxins*, whether introduced from without the organism or absorbed from within (*auto-toxins*), are important agents in the production of skin diseases. It is unknown whether they act directly on the skin through the circulation, or indirectly through the nervous system; probably they do not always act in the same way. It must, moreover, be admitted that, in the great majority of instances, their action cannot be proved; they are only assumed to be the real factors with more or less probability.

Such are the skin eruptions which occur in the course of, or as the sequelæ of, the exanthemata, gonorrhea, diphtheria, influenza, beri-beri, septicemia of all forms, acute rheumatism, and tuberculosis, and the antitoxin serum injections,\* and those of tuberculin. So, too, a large proportion of the scarlatiniform, morbilliform, diffuse, and even the exudative multiform erythemata, urticaria, many bullous eruptions, and most hemorrhagic eruptions, are in all probability also of toxic origin. With all these the list is by no means exhausted, but it is useless to go further in this direction, into the realms of hypothesis. Still less is known of the action of leukomains and ptomains, but something is known, and more is suggested as to the effects of retention of morbid products as in jaundice, glycosuria, granular kidney, and the absence of the thyroid, etc. What is known suggests that further inquiry on all these lines will have fruitful results.

*The Primary Plaque.*—Brocq first pointed out that in pityriasis rosea there is a primary patch which exists for some days before the generalization of the eruptions. This idea is, I believe, capable of extension to many other diseases of less acute course. I have often been able to trace a similar mode of development in *first* attacks of psoriasis and lichen planus, but it is not discernible in recurrences of these diseases. Probably it occurs in other diseases also. The inference is that the micro-organisms or their toxins multiply in the primary plaque, and then are absorbed into the circulation.

*Eosinophilia.*—Leredde is a strong advocate of the importance

\*Dubreuilh's observations are in favor of the rashes which often follow anti-diphtheritic serum injections, being due to its being obtained from the horse, and suggests, therefore, that other animals should be used.

of these cells, when in excess in the blood, as indicative of a toxic action, and wishes to found a class of "hematodermes," to include all cases in which eosinophilia is notably present. Much more research is required before this view can be accepted, but it is more fully discussed in the pathology of pemphigus and dermatitis herpetiformis.

*Nervous System.*—The etiological connection of the nervous system with cutaneous disease has been much discussed of late years, especially as to what are, and what are not, trophoneuroses. In the present state of our knowledge this is largely academic, except where anatomical changes in the nervous system can be demonstrated. The facts relating to this part of the subject have been summarized by myself,\* and these show that: While the nervous system may determine the occurrence, distribution, extent, and intensity, it has no influence on the kind of eruption; and, further, that less serious consequences ensue from cutting off the nervous supply than from irritant or inflammatory lesions of the parts of the nervous system that affect the skin; that the kind of eruption produced by the nervous system varies greatly, often without any evident reason, when the nervous effect is apparently the same in place and kind; that the same eruption may owe its origin to any defective link in the nervous chain from the center to the periphery; that the same kind of nervous lesion, that at one time appears to excite an eruption or other nutritive defect in the skin, even more frequently, produces no change in the skin whatever.

The lesions other than atrophic, which result when innervation is abolished, are often traceable to external injurious influences which the tissues, when unprotected by the nervous system, are unable to resist; but we know nothing of the conditions that determine the nature of the eruption or other skin defect, when the nerve lesion is irritative, nor what it is that determines whether there shall be any eruption or none at all.

\* "Lesions of the Nervous System etilogically related to Cutaneous Disease." *Brain*, vol. vii. (1884), p. 343, with many references to literature and cases. There is also a good summary of the position of the nervous system in relation to diseases of the skin by Auspitz in Ziemssen's "Handbook," p. 124. Schwimmer's "Die neuropathischen Dermatosen," is an excellent monograph; Kopp, "Die Trophoneurosen der Haut," and Leloir's writings may also be consulted.

This uncertainty of effect suggests that the nervous influence is an indirect one.

The cerebral effect appears to vary according to whether its control over the vaso-motor center is increased or decreased, and to the secondary changes it induces in the cord. No localizing lesions have yet been found for its influence on the vaso-motor center. In the spinal cord the fibers that preside over the nutrition of the skin are bound up with the sensory fibers, and reside, therefore, mainly in the posterior columns. Outside the cord the path is by the posterior roots, the spinal ganglia, and the sensory fibers, and lesions of any one or more of these may lead to changes in the skin.

The changes observed in *Graves' Disease* \* must be reckoned as indirectly nerve phenomena. In this abnormalities of pigmentation have been constantly noticed, such as freckles, local or general bronzing, and leukoderma; a greasy condition of the skin, cold sweating of the palms or soles, dryness and thinning of the hair and nails are also frequent. Vaso-motor instability shows itself in urticaria, typical, factitious, or as localized edema; hemorrhagic erythema is occasionally seen.

*Localization.*—While the skin, as a whole, is often affected almost from the beginning in the different processes enumerated, the individual skin structures may be found, to a certain extent, to take a predominating part in some diseases; but it is exceptional for one alone to be affected, and the longer the process lasts the more likely is the whole skin to be involved. Thus the vegetable parasitic diseases invade chiefly the upper layers of the epidermis; the horny layers are greatly hypertrophied in tylosis and other callosities; the prickle-cell layer is chiefly involved at first in psoriasis; the papillary layer in eczematous inflammation; the deep part of the corium in sclerodermia; in acne vulgaris, the inflammation is chiefly about the sebaceous glands; in papular diseases, round the hair follicles; in miliaria, about the sweat apparatus. Eczema is a good example of an inflammation beginning in the papillary layer, and extending, when of sufficient duration, to the whole skin structure both above and below it.

\* Dore, *Brit. Jour. Derm.*, vol. xii., 1900, p. 353, gives a good *résumé* and bibliography.

## DIAGNOSIS.

A THOROUGH knowledge of general and special semeiology and pathology is essential to the formation of an accurate diagnosis, the importance of which is so obvious as a necessary preliminary to successful treatment that no insistence on it would appear necessary, were it not that it is too often vague and indefinite, not only from ignorance of the characters of skin diseases, but from want of system, thoroughness, and trained accuracy of observation.

Such feeble attempts as "erythema," "pityriasis," "lichen," and "lichenoid," with which so many are content, are utterly useless, both for designation and as a guide to treatment; and if those who uttered them only realized that they were merely saying redness, scaliness, and pimples in a foreign language, they would not take so much trouble to say so little, though no doubt they are convenient cloaks to conceal ignorance from the patient.

A certain method is necessary in conducting the investigation. The patient should always be placed in a good light, and it is essential in most cases that it should be daylight; so much is color, especially if at all yellow, modified by artificial light that, unless this is unusually white, eruptions of a faint yellow may be overlooked altogether. Jullien recommends a cobalt blue glass as an aid to the early recognition of secondary syphilids.

*Completeness of Examination.*—The whole eruption should always be seen, if possible, as a perfectly erroneous idea may be conveyed by merely seeing the part presented by the patient, which is selected either because it gives the most annoyance or is the most easy of access, while the most typical features of the rash are perhaps only to be found elsewhere.

In men and children there is no difficulty, as they can always be stripped if the room be properly warmed; while in women, one has often to be satisfied by seeing the eruption by installments; but where there is any doubt, this at least should be in-

sisted on, as the patient would be the first to blame the doctor if any error arose from imperfect examination; at the same time, the subject must be led up to with gentleness and tact, after preliminary conversation has put her at her ease.

On first seeing a patient, the sex, apparent age, general conformation, complexion, and aspect are noted. Certain questions are then to be asked. "How long have you had it?" is the first and most important; it often clears the ground of so much, and will, in many cases, be decisive as to the nature of the disease. Thus, in a widespread erythematous eruption, a duration of two or three weeks would at once exclude all the exanthemata for which it might be mistaken; or, in an infiltration, a duration of several years, with very slow extension, would point to lupus rather than syphilis.

The next question is, "What was its course?" A large number of eruptions develop in a characteristic way, and alter considerably from their first appearance. This is especially the case in erythema multiforme, in many cases of eczema, in urticaria papulosa, etc. An eruption is also often modified by various circumstances besides time, such as scratching, poulticing, or previous treatment by another practitioner.

Then the eruption may come out all at once, as in herpes; or in successive crops, as in pemphigus; or by continuous or intermittent spreading, as in pityriasis rubra, and in many cases of eczema; or some lesions will be coming and others fading, as in secondary syphilids and hydroa; or again, there may be constant recurrences just when the disease appears to be cured, as occurs commonly in eczema.

The third question is, "What symptoms, especially as regards itching, fever, etc., attended or preceded the eruption?"

The fourth question, "What is its cause?" has to be answered, as a rule, by the doctor himself, after eliciting from the patient, by question and physical examination, the various external and internal conditions antecedent to the outbreak. A knowledge of general and special etiology is necessary for complete investigation on this point, which would be deferred until the nature of the eruption has been determined. Whether the eruption is only part of a general disorder, or is a disease of the skin itself, will often be decided by the presence and nature of the constitutional symptoms.

The physical characters of the eruption must now be examined.

The eruption as a whole should primarily engage attention, first as regards its distribution and extent. The importance of noting the distribution cannot be too much insisted upon. It is halfway and often more to the diagnosis, generally pointing in the direction in which further investigation should be made.

Thus, it may be universal, as in pityriasis rubra, pemphigus foliaceus, or lichen acuminatus; general, in many cases of eczema and psoriasis, and many erythematous eruptions; and more or less limited to one region or part in a large number of eruptions. It may be symmetrical, as in lupus erythematosus; unsymmetrical, as in lupus vulgaris; unilateral, as in herpes zoster and morphea; irregular and disseminate, as in scabies and parasitic eruptions generally; though in tinea versicolor it is generally irregular and aggregate. Then, is the lesion single, as in rodent ulcer; or multiple, as in most eruptions? Is it of uniform character, as in scarlatiniform eruptions; or multiform, as in syphilis, scabies, and eczema? Investigating still more closely, is there any definite arrangement of the individual lesions, either in groups in the course of a nerve, as in herpes zoster; or in circles or segments of circles, as in tinea circinata, etc., or in lines, as occurs sometimes in lichen planus; or in patches, round, oval, or irregular, as in psoriasis and many others?

The lesion itself has now to be examined. Is it a primary lesion, such as a macula, an erythema, a papule, nodule, tumor, or infiltration; vesicle, bulla, pustule, or wheal; or some special lesion, as a wart, horn, or burrow: or is it a secondary lesion, and therefore scaly, scabbed, or crusted, excoriated from scratching, or otherwise fissured, ulcerated, scarred, or stained?

Then, its pathological nature must be determined. Is it due to congestion, inflammation, hemorrhage, hypertrophy, atrophy, a neoplasm, or a parasite, either animal or vegetable?

Finally, the general condition of the skin must be noted, whether it is dry or moist, greasy or rough, etc.

The various points of inquiry may be grouped in the following way to impress them on the mind of the student, as they affect the patient, his disease, and the lesion.

SEX.

Occupation **PATIENT** General Condition.

AGE.

SYMPTOMS.

Duration **DISEASE** Course.

CAUSATION.

DISTRIBUTION.

Nature **LESION** Effects.

CHARACTER.

## TREATMENT.

DISEASES of the skin should be treated upon the same principles as diseases of other organs, and require, therefore, an accurate diagnosis, supplemented by a correct appreciation of their etiology and pathology. Unless the practitioner has a sound knowledge of general medicine, his treatment, except in a few local affections, will generally be as unsatisfactory to the patient as it ought to be to himself, and he will be driven to resort to the miserable subterfuge of the bungler, that "the rash is better out than in." The popular idea that it is dangerous to cure eruptions quickly, or, as the laity put it, "to drive the rash in," is as erroneous as the notion that nearly all skin diseases are due to impurities in the blood. Their external position facilitates the application of topical remedies; and as the skin, like other organs, may be idiopathically diseased, local treatment may then do all that is required; so, too, it is often sufficient when, although the internal cause has ceased to act, the skin disease persists. And even when local remedies are not curative, they may be valuable palliatives and contribute much to the comfort of the patient.

In a large proportion of cases the combination of internal and external treatment is nearly always advantageous, and often necessary, for the comparatively rapid and effectual treatment of the majority of skin affections—hyphomycetic and animal parasitic eruptions, some atrophies and neoplasms, being the most notable exceptions to the value of internal treatment. Internal remedies are often of value even in bacterial diseases, as in many of them the condition of the organism plays an important part in favoring or otherwise the development of the microbe. Even in some hyphomycetic diseases, such as actino- and blastomycosis, internal medication has proved an important aid.

### INTERNAL TREATMENT.

The character of the internal treatment depends upon the constitution, peculiarities, and general state of health of the pa-

tient, in nearly all cases. It is comparatively seldom that the name of the disease of the skin is the determining factor, and it is not until the most careful investigation has failed to detect any departure from health that resort should be had to one or other of the few drugs which act, or are supposed to act, directly on the skin. Since there is no organ or system which may not be directly or indirectly the main factor in the production of some skin affection, it is obvious that, from this point of view, an attempt to discuss the treatment of skin affections by attacking the organ primarily at fault, would be really a dissertation on general therapeutics; and because this is not attempted in this work, and attention only called to the more direct means at our command, it must not be supposed that it is considered of small importance; indeed, advancing knowledge shows that the more experience and medical acumen the physician possesses, the less is he driven to resort to arsenic and other specifics. General hygiene, tonics, such as iron, cod-liver oil, quinine, the mineral acids, nux vomica, etc., play a large and important part in the treatment of skin eruptions, and when they are indicated on general grounds, should be given regardless of the nature of the skin lesion in most cases; but this is not without exception. Thus sea air aggravates the great majority of cases of eczema, even where such a climate would be otherwise indicated; while in the interval of the attacks it may be highly beneficial. Probably, of all conditions requiring attention, dyspepsia and other disorders of the alimentary canal are the most important. Alkalies, bismuth, vegetable bitters, nux vomica, and the various means for producing regular evacuation of the bowels, are constantly in requisition.

*Dietary* naturally plays a most important part. This must be suited to the condition of the digestive organs of the patient, but even when these are sound, it must always be borne in mind that most inflammatory affections have an intimate sympathy with the gastric mucous membrane, and whatever irritates that aggravates the skin trouble. The dietary, therefore, while it should be as nutritious as possible in most cases, should be bland and easily digestible; all highly spiced food, condiments of all kinds, should be avoided; salted foods are also often injurious, because they are less digestible, and tend to give the stomach more trouble, though they need not always be absolutely pro-

hibited; oatmeal, and bran-containing preparations generally, do not suit those who have acute inflammatory affections; again, infants and young children with gastro-intestinal catarrh, either acute or chronic, can seldom digest starchy food, which should therefore be avoided, or given sparingly, and then with maltine.

*Alcohol* is a subject on which patients are very anxious. Speaking broadly, as a rule, the less the better, except in very moderate doses; alcohol dilates the vessels of the skin, and is therefore contra-indicated in inflammatory affections, in which it generally aggravates the pruritus and increases the hyperemia. Nevertheless, in persons of weak digestion, a small quantity at the beginning of a meal, especially after fatigue, will often, on the one hand, make just the difference between eating with an appetite, digesting well, and consequent restoration from the fatigue; and on the other, aggravating the exhaustion from the patient having too little vital energy to eat or digest. In elderly people, also, it is seldom wise to break up too suddenly the habitual use of alcohol, or indeed almost any habits not positively deleterious.

Alcohol should generally be given, if at all, in the form of a very small quantity of a pure spirit well diluted, or one of the lighter wines, such as claret or hock, which must, however, be perfectly sound or mature. As a rule, the stronger wines, such as port and sherry, and the imperfectly fermented products, such as beer, porter, and the sparkling wines, are more or less injurious.

Of the more direct remedies, a foremost place belongs to

*Arsenic*.—Unfortunately, with too many it is used indiscriminately, as if it were a panacea for all cutaneous woes; but this is far from being the case, and it is often positively injurious. To get good results from its use it must be employed intelligently, and with a definite aim as to its intended *modus operandi*. Arsenic acts in two ways, in my belief—directly on the skin, picking out and acting especially, if not entirely, on the diseased tissue, *i. e.*, in what one may call a local manner; or it may act as a stimulant to the peripheral ends of the nerves, and perhaps to the vaso-motor and trophic centers.

Physiological experiments made by Ringer, Murrell, and Miss Nunn on the frog, show that it acts powerfully upon the epithe-

lial layers. The epidermis peeled off the dermis, beginning at the deeper layers, the degeneration progressing from within outwards; and in the human subject, universal desquamation ensued in a case of poisoning. That the action is mainly a local one is shown in the treatment of psoriasis, for while under its use old patches often get quite well, new ones may form, even when the patient is fully under the influence of the drug. Its local action is further illustrated by its deposition in the form of a brownish-black pigmentation, limited to the site of the diseased area. Possibly the greater instability of the cells of the diseased area may, to some extent, account for this apparent elective affinity of the arsenic.

Other diseases in which it is of great service are chronic cases of lichen acuminatus, or lichen planus; in these, too, its action is probably chiefly on the epithelial layers.

Its action through the nerves is seen best in pemphigus, dermatitis herpetiformis, and chronic urticaria not dependent on digestive derangements, and in frequently recurring erythemata, whether congestive, or exudative, or hemorrhagic, and in recurring sweat eruptions.

In small doses it is useful in controlling iodid and bromid eruptions, but its *modus operandi* is not clear.

Arsenic is contra-indicated in nearly all acutely inflammatory affections, which are often aggravated by it, and the pruritus is generally much increased in affections dependent on indigestion or other irritable conditions of the alimentary canal, owing to its irritating the gastric mucous membrane, as in most cases of acne rosacea, dyspeptic urticaria, and active eczematous eruptions; indeed, it is scarcely ever necessary or even desirable in eczema, although largely prescribed by many practitioners. Even in psoriasis, and other diseases where it is generally suitable, it should not be commenced until all derangements of health, other than that of the skin, have been rectified as far as possible. Arsenic is seldom of any benefit in deep-seated inflammations, or in non-inflammatory affections, but Köbner has found good results in hypodermic injections for multiple sarcomata.

The mode of administration is of importance. It should always be given after food. Although there are a large number of preparations, the most important are the liquor arsenicalis,

or Fowler's solution, arsenious acid, and the new salt cacodylate of soda.

The other preparations, such as the liquor sodæ arseniatis, liquor arsenici hydrochloricus, solutions and syrups of bromid of arsenic, arseniate of iron, etc., have their advocates, but practically all the good that can be obtained from arsenic can be obtained with one of the first three preparations, though Donovan's solution occasionally finds a place, when it appears desirable to administer arsenic and mercury simultaneously. When Fowler's solution is given, it should be always well diluted and combined with a vegetable bitter, tinctura lupuli being one of the best, and if there is any gastric discomfort a little tinctura opii is a useful addition. Some begin with a small dose, and gradually increase it up to ten, or even twenty minims, if the patient bears it well; others commence boldly at once with ten minims. Although in a good many cases this latter plan succeeds, if it should irritate, it may render it impossible to give the drug at all, for some time to come. The more cautious method is therefore safer and preferable. Arsenious acid is given in the form of a pill, and the portability of pills often renders the solid form more convenient for the patient. The Asiatic pill (see Formulæ at the end) is a favorite method on the Continent. A formula much used by myself is, arsenious acid gr. i, pulv. glycerrhizæ gr. xxix, ext. lupuli 3 i; divide in pil. 30. One to be taken three times a day after meals.

Some authors, notably Hunt, think that arsenic should be pushed until its toxic effects are produced; this is, in my opinion, always to be avoided, if possible. Puffy eyelids and irritation of the conjunctiva should always be a sign to diminish the dose, though not necessarily to suspend it altogether. In some people very moderate doses will produce severe gastro-intestinal irritation and necessitate the abandonment of the treatment. It must be borne in mind that fatty degeneration of the liver and kidney, with albuminuria, may be induced by the prolonged administration of full doses; and in the skin, general pigmentation and keratosis of the palms and soles, which in a few instances has led to cancer.

*Cacodylate of Soda.*—Cacodylic (Dimethyl-Arsenic) acid is an organic compound of arsenic ( $\text{As}(\text{CH}_3)_2\text{O}.\text{OH}$ ). Although the sodium salt contains forty-six per cent. of arsenic, it is

claimed that the equivalent of large doses of arsenic may be given without toxic effects on the organism, and without irritating effects, whether given by the stomach, rectum, or subcutaneously; further, its therapeutic advantages are said to be very great. Danlos found it to be particularly efficacious in psoriasis, general lichen planus, dermatitis herpetiformis, and tubercular glands, and in all general diseases in which arsenic is indicated, especially pernicious anemia and phthisis. The sodium salt is free from the virulence and offensive smell of the acid, it is highly deliquescent, and therefore cannot be given in ordinary pills. The dose recommended is four-fifths of a grain per day to begin with, which is equivalent to nearly forty-eight minims of Fowler's solution, and increased up to 1 1-2 grains or ninety-five drops of Fowler's solution. On the other hand, when given by the mouth it becomes rapidly changed in the stomach and produces an intense alliaceous odor of the breath and urine. Moreover, its alleged non-toxic effects are only relative. Murrell found that after eleven one-grain doses of the sodium salt in pill sudden and dangerous symptoms of acute arsenical poisoning were produced. It is obvious that it is not safe to begin with anything like the dose recommended above; probably one-twelfth of a grain would be quite enough. Personally, I should be inclined to risk such a dangerous drug only in serious diseases, like general sarcoma, and then give it hypodermically, for which a formula is given in the Appendix. It can also be obtained for this purpose in sterilized tubes which contain one cubic centimeter of aseptic solution containing five centigrams, or .8 grain, which is the French daily dose, to be given for a week, and then rest a week.

*Salicin and Salicylates.*—In 1895 I published a paper\* upon the advantages of salicylate of soda in psoriasis and some other diseases of the skin. A very large experience enables me to speak with more confidence of its value; but salicin has been substituted for salicylates, as the latter have so often disagreeable effects, while salicin rarely disagrees. Briefly stated, it covers the same ground as arsenic, often succeeds where the latter fails, *e. g.*, in a spreading psoriasis, and is likely to be successful in all diseases in which the presence of a pathogenic microbe

\* *Lancet*, June 8, 1895, p. 1421, and *Brit. Jour. Derm.*, vol. vii., 1895, p. 229.

is probable. It is particularly successful in extensive cases of psoriasis, of lichen planus, in pityriasis rosea, and in bullous affections, in many hyperemic forms of lupus erythematosus, and has proved of temporary benefit in several cases of mycosis fungoides, some infiltrations disappearing, and even some tumors diminishing, and in one case of multiple giant-celled sarcoma large numbers of the tumors involuted in a few weeks. To obtain such results the dose must be an adequate one, not less than fifteen grains three times a day after meals, and this dose may be increased to twenty or twenty-five grains; larger doses are rarely required, but experimentally sixty grains three times a day have been reached without ill effects. Sometimes it has disagreed with the digestive organs, in a few cases it has produced headache and depression, and very rarely a scarlatini-form rash. It has been of no service in eczema except for its hepatic action, and is contra-indicated in most cases of pityriasis rubra.

*Thyroid Gland.*—Besides its well-known effect in removing the symptoms of myxedema, as long as it is taken, it has also been strongly recommended in other diseases of the skin, chiefly through the advocacy of Byrom Bramwell, especially for psoriasis, ichthyosis, and lupus vulgaris. Its value in some cases of these diseases is indisputable, although, unfortunately, it has not fulfilled all that, at first, one was led to hope. Its value is greatest in lupus vulgaris, and its indications and limitations are laid down under the treatment of the several diseases mentioned. The most convenient method of giving it is five grains of the dried gland in tabloid form. It is important to begin with a single tabloid a day, and increase it by weekly increments until fifteen grains a day is reached, reducing the dose if "thyroidism" is produced. Much larger doses have been given when the patient has been kept in bed, but it is rarely desirable, and if the patient is going about, unsafe. It is best given after meals. Thyrocol is the active colloid matter from the gland, and is said to be more regular and reliable than the gland, and there are no products of decomposition in it. It is five times stronger than the gland, and its initial dose, therefore, is one grain. Other derivatives have been suggested.

*Quinine.*—Besides its administration as an ordinary tonic, it is also sometimes useful in a more direct way; thus, in the acute

stage of pityriasis rubra, in dermatitis herpetiformis, where arsenic fails, or for other reasons, and in the febrile exacerbations of leprosy, quinine is often most serviceable. It is generally necessary to give large doses; five grains every four hours will sometimes be required; given in an effervescing form, with potash or soda, the alkaloid being dissolved in the acid mixture; if the bowels are kept open it rarely disagrees. In chronic urticaria, in furunculosis, and dermato-neuroses generally, and wherever there is a malarial taint, quinine finds an important place in smaller doses.

*Antimony.*—The employment of this drug in small doses finds strong advocates in Jonathan Hutchinson and Malcolm Morris;\* the latter used it in doses of  $\text{mij}$  to  $\text{mvij}$  of the wine in acute and subacute general eczema of adults and children (in appropriate doses), in some hyperemic cases of psoriasis, and in prurigo. To a certain extent I can bear him out, but the cases must be very carefully selected, and where there is any debility or gastric irritation it should be avoided, as I have seen a limited eczema spread widely under its administration. Mr. Hutchinson gives it to a very much greater extent in senile and other eczemas, often with opium.†

*Antipyrin.*—This drug has the recommendation of Blaschko, partly indorsed by Köbner, for the relief of symptomatic itching in prurigo, eczema, lichen planus, and senile pruritus, and as actually curative in some cases of pemphigus and of urticaria, especially that of children. It is certainly a valuable adjuvant in urticaria, and in some cases of dermatitis herpetiformis. It will also often relieve the pain of zoster.

*Phosphorus* has had advocates in the treatment of psoriasis, eczema, and lupus erythematosus. It may be given in the form of phosphorated oil, in capsules, or in coated pills. A limited experience has not enabled me to say much in its favor.

*Turpentine* was introduced by myself for inflammatory eruptions, and it is certainly useful in uncomplicated cases of eczema and hyperemic cases of psoriasis, and other forms of dermatitis in which hyperemia is the most prominent symptom. It checks some purpuras, and in a few cases of cancer it has also appeared to exercise a retarding effect. The method of administration,

\* *Brit. Med. Jour.*, September 22, 1883, p. 572.

† Jamieson also speaks favorably of it.—*Edin. Med. Jour.*, June, 1892.

which must be strictly observed, is described in the Appendix (Miscellaneous Mixtures).

*Tar and Carbolic Acid* have been given for psoriasis and eczema, the first in capsules, the latter in pills, gr. 2 in each dose. Both Kaposi and Liveing speak in praise of carbolic acid for psoriasis.

*Sulphur* has a much higher reputation among the laity than among the profession. It is, however, highly to be recommended, in my experience, in hyperidrosis and sweat eruptions generally; and sulphid of calcium, as Ringer showed, is one of the best drugs for furunculosis, and is useful in the freely suppurating forms of acne. Calcium sulphid to be of any use must be freshly made, and inclosed in properly coated pills, or it soon becomes inert.

*Ichthyol* is a distillation product of a peculiar bitumen from Tyrol, with sulphuric acid. As met with in pharmacy, it is really ammonium sulpho-ichthyolate, and is a treacle-like liquid with a disagreeable odor, miscible with water and fats. The soda salt is also in use. It contains a considerable proportion of sulphur, some of which is eliminated by the skin, of which I received an unwelcome proof in the case of a lady who, after taking ichthyol for some time for an erythematous eruption of the face, used a lactate of lead lotion, and almost immediately the sebaceous secretion of each pore was turned black, giving the appearance of the skin being thickly covered with small comedones. To Unna belongs the credit of introducing it, and he and many of his followers claim a very high place for it in so large a number of diseases of the skin, including leprosy, as should considerably simplify cutaneous therapeutics. As an internal remedy, I have found it useful in reducing some of the hyperemia in affections of the face, such as in some of the erythemata, lupus erythematosus, and acne rosacea. It appears to do this by leading to the contraction of dilated vessels, and sometimes it may do so indirectly by its beneficial effect on catarrh of mucous membranes. Thus, while giving it to a lady with lupus erythematosus of the face, she was entirely cured of a severe dysmenorrhea of twenty years' duration; conditions due to chronic rheumatism are also benefited by it. The dose is three to five minims in pills or capsules. As a local application it occupies only a small place in my practice; it is too dirty and

disagreeably smelling an application to allow of its being used except at night, without the patient giving up his avocation. It has, however, many friends, who recommend it for numerous and diverse complaints; I have found it most useful in some of the seborrheic forms of dermatitis.

It is least objectionable combined with a zinc gelatin paste, and this is the form in which I generally employ it for dry eczemas; but lotions, soaps, varnishes, and ointments are used. Unna classes it with pyrogallol and chrysarobin as a reducing agent.

*Thiol* (made by heating oil gas with sulphur) is very like ichthyol in its action and appearance, but without its disagreeable smell; it may be obtained either as a forty per cent. liquid or as a powder. Whether internally it acts like ichthyol I am not yet sure, but I have found it useful in some cases of recurrent winter eruptions, as an external application combined with Lassar's or zinc gelatin paste in subacute eczema without much discharge, and have also used it as a one or two per cent. lotion. Schwimmer claims good results with it, used externally, in erythema multiforme.

*Tumenol* (bitumen and oleum) is another candidate for favor in this class. Neisser speaks well of it for moist eczema of moderate severity, superficial burns, and ulcers. It is really tumenol sulphonic acid, and is a dark powder with a slightly unpleasant odor.

*Resorcin* is also recommended by Unna for a similar class of cases. This, with sulphur, ichthyol, sugar, linseed oil, and other reducing agents, when diluted, and applied locally, act as keratoplastic agents, as Unna calls them, *i. e.*, they "make the swollen and defective horny layer harder, thicker, and drier, so that it may again become more fit to take up fat." Resorcin is a good antiseptic and parasiticide, and being soluble in water and spirit, and neither objectionable in color or smell, is useful in many affections, such as eczema when dry, lupus, ringworm, favus, seborrhea, epidermic thickenings, etc.

*Iodin and Iodids.*—Besides their use in syphilis, especially in the tertiary stage, iodine and its preparations are of great utility in strumous affections. Liveing is a strong advocate for the use of the tincture in three to five minim doses, for lupus vulgaris, and in small doses the potash salt is often very useful in gouty

eczema; much smaller doses are required for non-syphilitic affections than for the syphilo-dermata, except in the case of psoriasis, for which gigantic doses have been recommended by Haslund.

*Diuretics.*—Just as the skin can often be made to help the kidneys in their difficulties, so can the kidneys be called in to the aid of the skin. Many chronic inflammations, and some acute ones, may be relieved by diuretics, the acetate and other preparations of potash being the chief aids in cases with a gouty or rheumatic taint, or wherever there is defective elimination the spirit of juniper and the infusion of broom may often be usefully combined with these salts. They should all be given freely diluted, and the neutral salts given after meals.

*Aperients.*—In all cases the bowels should be kept free, and in acute inflammatory diseases, especially eczema, it is often desirable to begin with saline aperients; the sulphates of sodium and magnesium, in equal parts, form an almost tasteless combination. Rochelle salt, in the form of seidlitz powder, is another useful form, and the stock combination of carbonate and sulphate of magnesia with a carminative is constantly in requisition. The sulphate of magnesia in combination with sulphate of iron (Startin's mixture) for acne vulgaris is extremely valuable. In pruritus the importance of easy action of the bowels is obvious, but, in all cases, regularity without effort, rather than intermittent violent purgation, should be aimed at.

*Mineral Waters.*—These have held a high place in skin affections from time immemorial. The various springs useful in skin affections are discussed at the end of this work; only those taken away from their source are alluded to here; they are chiefly the alkaline and aperient waters. Vichy and Carlsbad, the latter laxative also, are the chief alkaline waters; while the aperient, many of which are also more or less alkaline, are numerous; Friedrichshall, Püllna, Æsculap, Hunyadi Janos, Radocsky, "Victoria," Offner, Apenta, and Rubinat are the most useful, their relative strength being in the order in which they are enumerated. A heaped teaspoonful of Carlsbad Sprudel salt, dissolved in two-thirds of a tumberful of warm water, and taken before breakfast, is most useful; it is alkaline, and acts generally once or twice freely, not more. Sulphur waters, such as Harrogate and Strathpeffer, are of value where there is a rheumatic

taint. Levico is ferruginous and is the strongest arsenical water known. Roncegno is another ferruginous arsenical water. La Bourboule and Royat contain arsenic, but in much smaller quantities.

*Intestinal Disinfectants.*—The doctrine of auto-intoxication by absorption from the intestine has suggested the use of intestinal disinfectants, or those which prevent gastro-intestinal fermentation, and a good deal of success has attended their use in some cases of eczema and urticaria. Creasote, spirit of chloroform, and sulpho-carbolate of soda are most used when action in the stomach is desired, while in the intestine, those which are only soluble in the presence of alkalinity are preferable. Salol, benzo-naphthol, naphthol  $\beta$ , subnitrate of bismuth in large doses, when the bowels are relaxed; they certainly correct or prevent offensive motions and flatus.

*Counter-irritation over the vaso-motor centers* has been used by me with great success in obstinately recurring eczema, and similar inflammatory attacks. A mustard leaf, or blister, is applied over the vaso-motor center controlling the region affected, viz., behind the ears for the face, along the cervical spine (cervical enlargement) for the bust and arms, over the three lower dorsal and first lumbar spines (lumbar enlargement) for the genital or genito-anal region and lower limbs, or just behind the trochanter for one limb only. It always relieves the pruritus for some time, and often leads to the subsidence of the inflammation, or, if used when an exacerbation of an active eczema is threatened, will often abort or considerably mitigate the aggravation.

### LOCAL TREATMENT.

No part of the body is so exposed to parasites as the skin, even in its normal condition, and any disturbance of the surface, especially of an inflammatory character, opens wide the door for their entrance. It is therefore scarcely to be wondered at that as the knowledge of the noxious influence of many of these organisms increased, so also did efforts to destroy them, or prevent their entrance. The consequence has been the employment of microbe destroyers on the one hand, and of various methods of coating the skin to exclude the air, on the other.

In a word, the keynote of modern dermo-therapeutics is ANTI-SEPTICISM.

Fortunately, the skin offers greater facilities for the application of local remedies than any other organ. They are employed either to cleanse, give temporary relief, or as curative agents.

**Baths** stand first as cleansing agents, to remove scales, crusts, offensive and other secretions; when plain water is used, boiled or rain water is best; for scales or crusts alkaline baths are most useful, as in psoriasis and ichthyosis. In eczema and very active hyperemic states baths are generally injurious, so that they must not be used indiscriminately, and in eczema, therefore, soaking the part with olive oil or boric acid starch poultices are the best means to remove any scales or crusts. Medicated baths are used, both as palliative and curative agents. As palliative may be mentioned baths of alkalies and mucilaginous substances, such as starch, bran, size, marshmallow, etc., for urticaria and parasitic itching, and in many inflammatory conditions. As curatives may be instanced baths of sulphur in scabies, of tar in some obstinate forms of eczema and psoriasis, and the continuous bath in some severe forms of pemphigus and burns.

**Soaps** are also used medicinally and as cleansing agents; soda or hard soaps are used for ordinary cleansing, but soft or green potash soap is most efficacious in removing scales, and is much used in ringworm, psoriasis, and seborrhea.

As curative agents may be mentioned Hebra's soft-soap treatment for chronic eczematous infiltration, and, combined with spirit and oil of cade, for psoriasis of the scalp and knee. Without the oil of cade it is also useful for comedones. Many drugs have been added to a soda-soap foundation, *c. g.*, carbolic, salicylic, and boric acids, thymol, naphthol, sulphur, etc., but, as a rule, medicated soaps are of small curative value, as they are so largely diluted and usually applied so transitorily, while in few diseases can soaps be applied continuously, as they are then slightly caustic; further, many antiseptics, such as perchlorid of mercury, undergo decomposition with the soap-basis, and as antiseptics are inert.

"*Mouilla*" is a very excellent liquid potash soap, with a large percentage of glycerin. It is useful in comedones and for cleansing purposes, but has not enough fat for use on the face. For toilet purposes it is important that there should be no excess of alkali, and the best transparent and other soaps are neutral. Unna goes further, and advocates an over-fatty soap, *i. e.*, one containing four per cent. more fat than is necessary for the neutralization of the alkali; and Kirsten's "*Mollin*" is a soft soap, containing seventeen per cent. excess of fat (suet and cocoanut oil), and with the potash, a little soda and three per cent. of glycerin.

**Poultices** of bread or linseed are favorite applications, both as soothing remedies and in acute inflammations, as in boils, and to remove scales and crusts; but they are apt to do more harm than good, by acting as culture media for germs, and only those of an antiseptic character, such as boric acid starch poultices, wet boric acid lint, carbolyzed wet Gamgee tissue, etc., should be used where heat and moisture are indicated.

**Bandages** are highly useful in supporting relaxed tissues and in keeping on other dressings, as in all inflammatory eruptions below the knee, especially where there are varicose veins. Martin's india-rubber bandage is very useful in ulcers of the leg and in elephantiasis arabum, and the crêpe bandages are light, porous, and elastic.

**Ointments** are probably the most universally applicable remedies for skin diseases. They consist of various fats, in which medicaments are intimately mixed or dissolved. The fats most commonly employed are—lard, preferably benzoated, which retards decomposition; petroleum fats, such as vaselin, white vaselin, etc.; and lastly, lanolin, introduced by Liebreich, a cholesterin fat obtained from sheep's wool. Compound fats are also employed occasionally, such as spermaceti, or white wax, or paraffin wax, and olive or almond oil in various proportions, according to the consistence required. Resorbin is another compound put forward as possessing great penetrating power. It is an emulsion of almond oil and white wax with a little water, gelatin, soap, and lanolin. Of all these benzoated lard

is the most universally employed. The vaselins at one time threatened to supersede it; but it was found that the claim that they did not turn rancid was not sustainable, and that then they were very irritating, and even fresh vaselin irritates a few skins, possibly from some want of care in the manufacture; finally, Shoemaker and others assert that its penetrating power through the tissues is very inferior to that of lard or lanolin. Lanolin has great penetrating power, and is especially useful where this quality is required, as in ringworm, for mercurial inunction, psoriasis, etc. It has also the advantage of being readily miscible with watery solutions; it is, however, very sticky when used by itself, and requires to be mixed with a third part almond oil or the heavy paraffin oil, to make a good ointment base. Ointments are of five classes—soothing, astringent, antiseptic, stimulating, and parasiticide. The last are only part of a large class of remedies.

*Soothing* ointments are such as protect the inflamed part from the injurious influences of air and moisture, and comprise all simple ointments, such as spermaceti, cucumber, cold cream, unguentum simplex P. B., etc.

*Astringent* ointments are generally soothing as well as astringent, and comprise most of the preparations of lead, zinc, bismuth, boric acid, the acetate and oleate of lead (diachylon). The oxid and oleate of zinc and lead, and boric acid are those chiefly employed, and are suitable for most forms of dermatitis, especially eczema. To get the best effects from them, they must be continuously applied by being spread thickly on strips of linen or lint, and bound on. Unna's salve-muslin preparations are convenient; a loosely woven muslin is soaked in the ointment, and can be quickly and closely applied.

*Antiseptic* ointments are chiefly used in pustular forms of dermatitis, such as pustular eczema and impetigo contagiosa, and comprise ointments of iodoform, iodol, boric acid, ammonio-chlorid of mercury, salicylic acid, carbolic acid, ichthyol, thiol, etc. Where there is active inflammation, weak ointments, continuously applied, answer best.

*Stimulating* and antiseptic ointments are numerous, and often synonymous, and only a few can be mentioned. They are of great utility in numerous chronic inflammations, such as psoriasis, chronic eczema, lichen planus, prurigo, etc. They

comprise preparations of tar and its derivatives, oil of cade, oil of birch, carbolic acid, etc.; thymol, naphthol, Goa powder and its active principle chrysarobin, pyrogallie acid, salicylic acid, and various preparations of mercury and sulphur. The quantity varies according to the amount of stimulation required, and each has its peculiarities; and much experience is required in the selection of the right drug and the strength of the preparation; but where there is any doubt the weaker preparation should always be chosen, and at first used over a small area, and, if suitable, the strength increased as required. As a rule they are applied intermittently, being rubbed on two or three times a day.

**Oils and Liniments.**—Simple oils, such as olive, almond, linseed, cod-liver, or castor oil, are bland applications, and are used either to soften and remove scales or crusts, or to soothe and protect a highly inflamed skin; thus, pityriasis rubra, acute psoriasis, and the like, are much benefited by being wrapped up in oiled bandages. The crusts of pustular eczema on the scalp, for instance, are best removed by strips of flannel dipped in olive oil and applied closely for some hours. Olive oil with lime-water forms the well-known Carron oil, useful for burns and superficial inflammations; the addition of calamin and oxid of zinc to this constitutes calamin liniment, which is a highly valuable preparation, best applied by dipping bandages into it and wrapping the affected part up; it is much more convenient and economical than ointments when the diseased area is extensive, as in pityriasis rubra. Petroleum oil, as used for lamps, is a cheap and efficient application for extensive pediculi capitis. Chaulmoogra oil is used for strumous affections and leprosy, both internally and externally. There are also many essential and stimulating oils, which are used in combination with less active vehicles, such as oil of cade, oil of birch, oil of turpentine, Gurjun oil (used in leprosy), and many others.

**Lotions** are applicable to a great number of forms of disease, and are, as a rule, more convenient than greasy applications, as most of them can be applied intermittently. Like ointments, they are soothing, astringent, stimulating, antipruritic, etc.

*Soothing* lotions are a large and important class—lead ace-

tate and lactate, oxid of zinc, calamin, bismuth in suspension, black wash, boric acid, bicarbonate of soda, and borax, are the most important members of this class. They are generally combined with a small proportion of glycerin, to prevent too much desiccation. Glycerin of lead subacetate, which is used diluted, is a most important preparation. Boroglycerid is another useful glycerin preparation, and glycerin of carbolic acid is a good parasiticide. They are chiefly used in active inflammations.

*Stimulating and antiseptic* lotions contain corrosive sublimate, carbolic acid, tar (especially as liquor carbonis detergens), thymol, sulphur, sulphid of calcium, acids, alkalies, cantharides, nitrate of silver, and many others, often with more or less alcohol to increase the solubility or to promote evaporation and produce cooling. They are used in chronic inflammations, such as psoriasis, seborrhea, eczema, acne vulgaris, and rosacea.

*Astringent* lotions have a less frequent employment except in hemorrhage and hyperidrosis, and contain substances like tannic acid, alum, acetic acid, etc.

*Antipruritic* lotions are extremely valuable for urticaria and pruritus without eruption. The best are liquor carbonis detergens, sanitas, terebene, salicylic acid, carbolic acid, benzoic acid, hydrocyanic acid, and alkaline lotions.

**Dusting powders** are used to dry up and astringe, as in hyperidrosis, intertrigo, and eczema. Rice, starch, arrowroot, kaolin, emol keleet, lycopodium, asbestos, brown or white fuller's earth, iris root, talc, and silicic acid are the usual vehicles, and with them are combined oxid and oleate of zinc, boric acid, calomel, oil of cade, or creasote. They must be intimately mixed, and the powder free from grittiness and impalpable. Unna's plan is a good one, viz., filling long, narrow, muslin bags with one of these powders, quilting the bags across to prevent shifting, and fastening them to such parts as the groins, round the scrotum, under the breasts of fat women, etc., in eczema, intertrigo, etc. They are not suitable where the discharge is inflammatory and very copious, as they form crusts with the exudation, which often produce great discomfort.

**Parasiticides** are animal or vegetable destroyers. Sulphur and its sodium, potassium and calcium compounds, destroy

both animal and vegetable life; naphthol, styrax, and Peruvian balsam are useful in scabies; stavesacre, white and red precipitate, and corrosive sublimate are used largely for pediculi; chrysarobin is one of the most powerful vegetable parasitocides. But their number is legion, and the reader is referred to the section on Parasitic Diseases for more particulars.

**Bactericides.**—Iodoform stands first in importance for skin diseases, on account of its destructive influence on pus cocci and tubercle bacilli, seldom producing local irritation, as perchlorid of mercury does. Iodoform, if absorbed in large quantities, is poisonous; unfortunately, too, its penetrating and nauseating odor limits its use, and persistent efforts to find odorless substitutes have only been partially successful as yet. Iodol and aristol are much less powerful; of the two, iodol is rather stronger than aristol in my experience, and is a fair substitute for iodoform where that cannot be used. Dermatol has not fulfilled its promise; it is a bismuth subgallate, it is much weaker than iodoform, and is of no use for chancres. I have used euophen with more satisfaction; it is an iodine compound, with an odor compared to saffron, but not very strong. It can be used in the same cases as iodoform, except, perhaps, where tubercle bacilli are concerned, and acts well, though it is probably not quite so powerful a bactericide as iodoform. Loretin, another iodine compound, is of distinct value, and the odor is not very objectionable. Orthoform, useful as a local anesthetic, may, however, lead to irritation and necrosis.

The sozo-iodol salts of soda, potash, zinc, and mercury are also good antiseptics; but the soda and potash salts are too painful to be dusted on a wound. They are, however, soluble in water, the sodium salt especially; and as they are very clean, inodorous applications may be used in antiseptic lotions for hair washes, etc. Sozo-iodolate of mercury is strongly recommended by Schwimmer for the treatment of syphilis by intramuscular injections, as it is much less painful than the perchlorid. I also use it in the same way for leprosy. Pyoktanin, blue and yellow, are aniline dyes, and this circumstance rules them out of court for most skin diseases. They have been successfully employed for epithelioma and similar malignant growths.

**Caustics** are chiefly employed for lupus and new growths generally, and are of all grades, from discutients, such as salicylic acid, iodine, mustard, and cantharides, up to those producing gangrene, such as caustic potash, arsenic, chlorid of zinc, caustic lime, nitrate of silver, ethylate of sodium, chromic and pyrogalllic acids; the last three are not so strong as the others. Caustic potash is very powerful and the pain does not last long, but as it is liable to diffuse into the tissues farther than was intended, it must be very cautiously used. Arsenic is very valuable, as it picks out the diseased tissue, but should only be used over a small surface at a time, as fatal absorption has occurred when employed over a large area. Chromic and salicylic acids are used for warts and corns; salicylic acid is an important keratolytic, in the form of plaster or paste, to remove thickened epidermis. Chlorid of zinc does good service, but acts slowly, and is painful for a long time, but it is more manageable than caustic potash. The solid stick of nitrate of silver is valuable for boring out lupus nodules. Acid nitrate of mercury and nitric acid are good superficial caustics, and are used for chancres, post-mortem warts, and lupus vulgaris and erythematosis. Other agents are in occasional use.

**Special Media.**—*Hard pastes.*—Pick of Prague first employed gelatin, with a little glycerin, as a medium for applying chrysarobin, pyrogalllic acid, etc., without staining the clothes. Salicylic acid and other medicaments were also used.

Unna has improved on Pick's formula by using less gelatin and incorporating glycerin, and so formed an excellent hard base to which may be added such medicaments as are required. Such *hard pastes* are suitable for dry eczema and other inflammations where there is little or no discharge. The paste is melted by placing the vessel containing it in hot water, and is then painted on with a stiff brush, and dabbed with cotton wool to prevent the surface from being sticky. He has also devised lead, starch, and gum pastes, but they have only a limited application, as they must be freshly made, and are not very manageable.

*Soft pastes.*—One of the most useful, with something of the character of an ointment, is Lassar's starch, zinc, and vaselin paste, with a little salicylic acid, for eczema where it is dry or

when the discharge is only moderate. It is spread thickly on the diseased surface, and covered with a many-tailed bandage of butter cloth. The formulæ for these and other pastes are given in the Appendix.

Unna's plaster muslins are also much used. The plaster muslins consist of a very thin sheet of gutta-percha backed with undressed muslin, and coated on the right side with an adhesive substance, with oleate of alumina, containing one or more medicaments. The drug, being in a magma on the surface, acts more powerfully than when incorporated in the plaster substance, in the usual way. Another variety is called *Paraplasts*, which fit and adhere well on uneven surfaces.

The salicylic acid plasters are the most valuable with or without creasote, the latter being used for lupus. The others Unna uses most are those of mercury and carbolic acid for boils and other phlegmonous inflammations, resorcin for severe acne vulgaris and rosacea, and the zinc oxid and mercury plaster as a substitute for inunction in syphilis. They are prepared of different strengths, and are obtainable in this country.

**Varnishes.**—A variety of these have been devised. *Traumaticin*, devised by Auspitz, is very valuable. It consists of gutta-percha dissolved in chloroform; it is troublesome to make properly (*vide* Appendix), and the British Pharmacopeia therefore uses bisulphid of carbon instead of chloroform as a solvent. The varnish resulting is of good consistence, but impossible to use on account of its fecal odor. For psoriasis, for which traumaticin is chiefly used, five or ten per cent. of chrysarobin or pyrogalllic acid is mixed in and the emulsion painted on. Or Besnier's modification may be used—ten per cent. of chrysarobin in chloroform is painted on, and then varnished over with traumaticin.

*Collodion* applications are extremely valuable, especially the non-flexile, which acts by mechanically compressing the part as well as excluding the air. Simple collodion is useful in chilblains and in lupus erythematosus; for the latter, also, salicylic acid or resorcin is sometimes usefully added, and a two per cent. salicylic acid collodion I regard as most valuable for ringworm. Iodin and collodion is also good.

Other films are Kristaline, a proprietary article primarily in-

tended as a lacquer, but recommended as an improved collodion by Leslie Phillips. It is a solution of pyroxylin in wood naphtha containing amyl acetate. Schiff's *Filmogen*, a solution of pyroxylin in acetone, is a similar varnish. The addition of castor oil and Canada balsam make these preparations flexible.

Other varieties are made with tragacanth, such as Pick's linimentum exsiccans, Elliot's bassorin varnish, Unna and Beiersdorf's borax or glycerin casein, all soluble in water. There are others, soluble in spirit, such as castor oil and shellac, Canada balsam and collodion, etc., which have been tried with success in certain cases. There is scope for any amount of ingenuity in these pastes, but the principal aim is the same in all—the exclusion of the air in the most efficient and convenient manner from the inflamed part.

**Oleates.**—Metallic oxids and alkaloids dissolved in oleic acid were first used by J. Marshall, the oleates of mercury and morphia being those he first employed. Subsequently he invented the zinc oleate, which I was the first to use for skin diseases. Since then Shoemaker has been a prominent advocate for various oleates which he had made by double decomposition—a distinct improvement. The most valuable are—oleate of zinc, oleate of lead (Hebra's diachylon ointment), oleate of bismuth, all efficacious in eczematous inflammations; and oleate of mercury and oleate of copper as vegetable parasiticides.

**Mechanical means.**—*Instruments.*—The instruments which are especially used in dermatology are the *steel spoon* and the *curette*, for scraping lupus vulgaris; the *multiple scarifier* and *puncturer* of Squire, Veiel, Pick, etc., for lupus erythematosus; *various implements with a central hole*, for facilitating the removal of comedones; *needle holders*; and the *epilation farceps*. Keyes has devised a cutaneous punch for removing small portions of skin; and Nevins Hyde what he calls a massering ball, useful for a species of massage in acne vulgaris. Many other instruments are from time to time advocated by their inventors, but have not come into general use. Most of these instruments are figured in the sections on the diseases in which they are most employed. As aids to diagnosis are various lenses, especially a watchmaker's lens, which leaves the hands free, and where it has to be worn a long time may be mounted in a spec-

tacle frame. A four-inch unmounted lens, such as oculists use, serves the double purpose of slight magnification, and also to examine doubtful lupus or other lesions by glass pressure, the phaneroscopy of Liebreich, and the diascopy of Unna, who dispute as to priority in enunciating the idea, which is simply to press out the blood, which obliterates an inflammatory nodule, but leaves a lupous one still visible as a yellowish-brown spot.

Cobalt blue glass, according to Jullien, enables a secondary syphilid to be recognized earlier than could be done by the naked eye.

*Electricity.*—Every year almost seems to bring the discovery of some new means of using this agent in the service of dermatology.

*The Galvano-Cautery* was strongly advocated by Besnier as very useful for lupus in all forms, but is chiefly employed now for lupus affecting mucous membranes, and for removing many small growths.

*Paquelin's Cautery* is also used for similar purposes.

*Electrolysis* is an important agent in the permanent removal of superfluous hairs, in the obliteration of small dilated vessels, and in the destruction of nevi and some new growths. The galvanic current has been occasionally used to relieve the pain of herpes zoster, and for pruritus, but it and the Faradic current have found but small employment hitherto in dermatology, except in Raynaud's disease, in which galvanism has been of some service.

*The Röntgen, or X-Rays.*—Largely through the advocacy of Freund and Schiff these rays have rendered important therapeutic services to dermatology in the treatment of lupus vulgaris, in a more limited degree of lupus erythematosus, in the shrinkage of hypertrophic scars, in the healing of rodent ulcers and some epitheliomata; in coccogenic sycosis, in acne, in epilating for tinea tonsurans and favus, and the removal of superfluous hairs from women's faces, though much has still to be learned to insure permanency of effect and freedom from risk of burns. Much care and experience is required to get the good effects without the bad, as serious sloughing with ulcers which take months or years to heal may ensue from too long or too frequent exposures or the use of "soft tubes," etc., and from other imperfectly known causes.

*The Finsen Rays.*—Finsen of Copenhagen was the first to show the value of actinic light, from which the heat rays were separated, in the treatment of skin diseases. He used both sunlight and the electric arc with an elaborate and expensive apparatus, which placed it beyond the reach of most private individuals.

Lortet and Genoud of Lyons, whilst utilizing the idea, devised a lamp of moderate bulk and price which could be used by anyone whose house is connected with an electric main, and this has superseded the original Finsen apparatus. The essential parts are two carbons approximated by hand-screws to form an arc light, a metallic double-walled shield, with a constant water current through it to keep it cool and guard the patient against the excessive light and heat. In the center of the shield is an aperture which can be closed by a small metallic box also with a water circulation; closing each end is a rock crystal lens to cut off the heat rays. Against the outer lens, whose size and shape can be adapted to the diseased surface, the latter is pressed firmly, as it is essential to press the blood out of the part to be acted upon in order to get the full effect.

This limits its use to a small area at a time, to dry lesions, exuding surfaces being unsuitable, while mucous membranes are inaccessible; but for these the Röntgen rays are available. Sequeira and others have made slight modifications in the Lortet-Genoud model. The Finsen rays are used mainly for lupus vulgaris, for some cases of lupus erythematosus, and it is said that some cases of alopecia areata have been benefited by it, but probably only cases which could have been more easily treated by other means.

The advantages are the painlessness of the treatment and the neat smooth scar. The disadvantages are the large number of exposures required, and consequent expense, unless the area of disease is small.

*High tension and frequency currents* were first introduced into therapeutics by D'Arsonval, but Oudin was the first to use them for diseases of the skin. Some deductions must be made from Oudin's enthusiastic recommendations, which not only comprehend similar diseases to those benefited by Röntgen rays, but these currents are said to be especially useful in general and local itching, even the most violent, as in some cases

of pruritus ani, or chronic patches of eczema and psoriasis, and in warts. They are said to be more useful for lupus erythematosus than for lupus vulgaris. Much more experience is required before their uses and limitations are known.

It is suggested that all these forms of electricity, including static electricity, act in the same way, diminution of blood-supply to the exposed area playing a chief part.

*Massage* (in the vernacular, "rubbing") is of service in assisting in the absorption of inflammatory induration, in scleroderma, in sluggish circulation of the skin (*e. g.*, "chilblain circulation"), and in acne indurata. Nevins Hyde's massering ball is an ingenious contrivance for carrying out the rubbing in awkward corners, a ball, rotating in a socket with handle, being the essential feature.

Massage has been quacked as usual, having been put forward as a preventive of wrinkles of the face, and forms an important part in the armamentarium of the advertising complexionist.

Other physical agents proposed, but not extensively used, are radiant heat, freezing, and exposing the part to a constant immersion in oxygen, for which G. Stoker has devised various forms of apparatus. Ulcers, lupus vulgaris, rodent ulcer, and epithelioma, etc., have been treated with some success by these means.

## CLASSIFICATION.

THE object of classification is twofold—to show the pathological relationship of diseases to each other, as a guide to community of origin; and to serve as a *memoria technica*, which enables the multiform aspects of disease to be remembered and methodically studied as an aid to diagnosis.

The first classification of any real value was that of Willan, though Plenck had foreshadowed it some years before. It was founded almost entirely on the clinical aspect of diseases, grouped according to their elementary lesions. Notwithstanding many other attempts, it practically held possession until that of Hebra was published, the main feature of which was that it applied the general principles of pathology to skin diseases. It is largely a classification of pathological results independently of their cause (on an anatomical basis), and is a great advance on all previous attempts.

There are nine classes: 1, disorders of secretion; 2, hyperemias; 3, exudations; 4, hemorrhages; 5, hypertrophies; 6, atrophies; 7, new growths; 8, neuroses; 9, parasites.

The great advantages of this system are that it is simple and that it deals with the accomplished facts which we see before us when a case comes for diagnosis, and that, consciously or unconsciously, we endeavor to locate the disease in one or other of these categories before we enter on the consideration of its etiology and pathogeny. It is therefore eminently suited for the student; for, although admittedly imperfect, and not quite logically consistent in all its details, while it affords no indication how the pathological changes are produced, except as regards parasites, it is the one which is the most practical, and, on the whole, as pathologically sound as our present knowledge permits.

Therefore Hebra's classification, modified to suit advances in knowledge and clinical convenience, is still the basis of the one employed in this work for the primary divisions, but in the subdivisions the pathological and etiological relationships are

pointed out in tabular and other forms as far as is possible in my opinion.

In grouping together the diseases of the appendages of the skin, I have been influenced solely by the clinical convenience of studying, as a whole, all the diseases of the hair, nails, etc., instead of picking them out from the different pathological groups of inflammation, hypertrophy, etc.

The varieties of dermatitis from drugs, poisoned wounds, etc., and parasitic diseases, have an etiological rather than a pathological relationship.

There are, moreover, a few anomalous diseases, like *ainhum*, *molluscum contagiosum*, etc., which do not fit well in any of the classes; their present arrangement is therefore provisional. In short, feeling the hopelessness, at present, of a really scientific and consistent classification, my guiding principle has been what I conceive to be the most convenient, from a clinical point of view, without going so far as those writers who, in despair, have adopted an alphabetical arrangement.

To those whose studies are more advanced, the systems devised by Auspitz in the first place, followed by Bronson and Jadassohn, are worthy of study. Auspitz was the first to endeavor to show the pathogenesis of skin diseases. Jadassohn's classification, the latest of its class, is chiefly etiological, and the rest is physio-pathological; but, though indicative of the line in which advance can be made, our knowledge is too incomplete for it to be of great practical utility at present.\*

\* *Vide* "La Pratique Dermatologique," vol. i., article "Classification," which gives a review of the principal classifications proposed.

## CLASS I. HYPEREMIA—CONGESTIONS.

Most prominent primary lesion		Presumed etiology and pathology.
Erythema simplex	Erythema . . . . .	Vaso-motor disturbance.
" ab igne	" and pigmentation in rings	Exposure to fire heat. Escape of blood-coloring matter, etc., from the vessels.
" pernio	"	" " damp cold. Venous stasis.
" intertrigo	" with fluid exudation	Sweat irritation between adjacent surfaces. Probably microbic.
" fugax	" . . . . .	Vaso-motor disturbance.
" roseola	" . . . . .	Of toxin origin. Superficial inflammation.
" scarlatiniforme	" . . . . .	" "

## CLASS II. EXUDATIONES—INFLAMMATIONS.

Most prominent primary lesion.		Presumed etiology and pathology.
Erythema exudativum multiforme	Erythema . . . . .	Toxin. On vaso-motor nerves.
" iris	" and vesicles . . . . .	" " "
Peliosis rheumatica	" and hemorrhages . . . . .	" " "
Erythema nodosum	" in soft swellings . . . . .	" " "
" " elevatum diutinum	" inflammatory nodules going on to infiltrating fibromata	Unknown.
Pellagra	" . . . . .	Peripheral poison from diseased maize.
Acrodynia	" . . . . .	Vaso-motor.
Urticaria	Wheals . . . . .	Peripheral poison of similar origin. Vaso-motor.
" pigmentosa	Persistent wheal lesions . . . . .	Toxic vaso-motor irritability. Toxic vaso-motor irritability. + mast-cell accumulation.
Prurigo	Lenticular papules . . . . .	Peripheral neurosis. Cause unknown.
Eczema	Multiform lesions . . . . .	Pathogeny disputed.
Dermatitis repens	Spreading epidermic denudation with fluid exudation . . . . .	Primarily traumatic. (? Neurosis).



## CLASS IV. HYPERTROPHIÆ—HYPERTROPHIES.

	Parts affected.	Presumed etiology and pathogeny.
Ichthyosis . . . . .	Epidermis and papillæ . . . . .	Congenital. Defective skin secretion.
Verruca . . . . .	" . . . . .	Microbic.
Clavus . . . . .	" . . . . .	Local irritation.
Cornu . . . . .	" . . . . .	(?)
Callositas . . . . .	Epidermis . . . . .	Friction—sometimes congenital.
Keratosis palmæ et plantæ . . . . .	" . . . . .	Congenital or acquired. Some of the latter of microbic origin.
" pilaris . . . . .	Hair follicles . . . . .	Usually congenital.
Porokeratosis . . . . .	Sweat orifice keratosis . . . . .	(?)
Keratosis nigricans . . . . .	Horny and papillary layers . . . . .	(?) Toxic or mechanical injury to sympathetic.
" vegetans . . . . .	Follicles . . . . .	Probably microbic.
" follicularis contagiosa . . . . .	" . . . . .	"
Angiokeratoma . . . . .	" . . . . .	(?) Cause, predisposed to by feeble circulation.
Sclerodermia . . . . .	Corium . . . . .	(?) Neuropathic inflammation and endarteritis.
Sclerema neonatorum . . . . .	" . . . . .	Low vitality.
Edema neonatorum . . . . .	" . . . . .	"
Elephantiasis . . . . .	The whole skin . . . . .	Lymphatic blocking and overgrowth.

## CLASS V. ANOMALIES OF PIGMENTATION.

Lentigo . . . . .	Pigment + in spots . . . . .	Sympathetic neurosis.
Chloasma . . . . .	" + in patches . . . . .	"
Albinism . . . . .	" diffuse . . . . .	Congenital absence.
Leukodermia and melanodermia . . . . .	" disturbance + and — . . . . .	Sympathetic neurosis.



CLASS VIII. NEOPLASMATA—NEW FORMATIONS—*continued*.

	Character of lesion.	Presumed etiology and pathology.
Lupus vulgaris . . .	Nodules and infiltrations . . .	
" verrucosus . . .	" " with wartiness . . .	
Scrofuloderma . . .	" " . . .	Granulomata, due to direct presence of tubercle bacilli.
Tuberculosis miliaris . . .	Nodular ulceration . . .	
Erythema induratum . . .	Nodular infiltration . . .	
Lupus erythematosus . . .	Infiltrating. Feeble circulation . . .	No tubercle bacilli. Pathogeny unknown.
Syphilis . . .	Early inflammatory, later infiltrating . . .	Micro-organism unknown.
Lepa . . .	" " " " . . .	Lepra bacillus.
Rhinoscleroma . . .	Infiltrating . . .	Special bacillus.
Keloid . . .	Fibrous structure . . .	Unknown. (? Microbic.)
Fibroma . . .	Fibro-cellular . . .	
Myoma multiplex . . .	Muscular . . .	Embryonic growths, but not necessarily present at birth.
Neuroma . . .	Nerve sheath fibrous growth . . .	Some myomata are acquired.
Nevus pigmentosus . . .	Epidermic growths, not always pigmented . . .	Epithelioma adenoides cysticum, adenoma sebaceum and some forms of milium might be included in this group; see also sarcoma capitis.
" vascularis . . .	Blood-vessel growths . . .	Acquired.
Lymphangiectodes . . .	Lymphatic vesicles . . .	Unknown.
Lymphangio-ma tuberosum multiplex . . .	Epi- or endothelial cystadenoid growths . . .	
Telangiectasis . . .	Dilated blood-vessels . . .	
Angioma serpiginosum . . .	Groups of dilated blood-vessels which spread peripherally. . .	
Carcinoma . . .	Epithelioid cells, not from epidermis. . .	
Epithelioma . . .	Epithelial " of epidermis. . .	
Rodent ulcer . . .	" " of appendages of skin. . .	
Paget's disease . . .	" " of milk ducts and of appendages of skin. . .	
Sarcoma . . .	Embryonic connective tissue cells. . .	
Sarcoid . . .	Variable. . .	
Leukemia and pseudo-leukemia cutis . . .	Adenoid tissue of lupus granuloma type. . .	

CLASS VIII. NEOPLASMATA—New Formations—continued.

	Character of lesion.	Presumed etiology and pathogeny.
Mycosis fungoides	Granuloma.	Auto-toxin.
Yaws	"	"
Verruga peruana	"	"
Furunculosis orientalis	"	"
Granuloma inguinale tropicum	"	"
Papillary growths—acanthoma	"	"

Engorging  
Neoplasms.

CLASS IX. MORBI APPENDICIIUM—DISEASES OF THE APPENDAGES.

A. SWEAT GLANDS—	Most prominent primary lesion.	Presumed etiology and pathogeny.
Hyperhidrosis	Excessive secretion.	
Bromidrosis	Altered quality.	
Chromidrosis		Bacterium foetidum.
Phosphorescent sweat		
Uridrosis	Secretion absent.	
Anidrosis		
Miliaria crystallina (sudamina)	Superficial vesicles.	Retained secretion from occlusion of sweat ducts.
" vesiculosa	Papular vesicles.	Inflammation.
" papulosa	Papules.	"
B. SEBACEOUS GLANDS—		
Seborrhea	Excessive secretion and greasy scales.	Seborrhoeic micro-bacillus.
Seborrhoeic dermatitis, or seborrhoeides	Multiform inflammatory lesions.	" " + Bottle bacillus.
Sebaceous cysts	Tumors.	Retention of secretion from blocking of duct.
Milium	White papules.	"
Comedones	Black papules.	" and Seborrhoeic micro-bacillus

CLASS IX. MORBI APPENDICUM—DISEASES OF THE APPENDAGES—*continued*.

	Most prominent primary lesion.	Presumed etiology and pathogeny.
<b>Acne vulgaris</b> . . . . .	Comedones and pustules . . . . .	Retention of secretion and seborrheic bacillus.
" <i>rosacea</i> . . . . .	Redness and pustules . . . . .	Reflex congestion + inflammatory lesions.
" <i>varioliformis</i> . . . . .	Necrotic pustules . . . . .	Seborrheic bacillus + staphylococcus aureus (Sabouraud).
<b>Acne agminata and folliclis</b> . . . . .	Aggregated and disseminated pustules . . . . .	? Of tuberculous origin.

## C. HAIR FOLLICLES AND HAIR—

Concretiones . . . . .	Growths on the hair-shaft . . . . .	Microbic.
Hirsuties . . . . .	Excessive growth . . . . .	Mostly unknown.
Atrophy . . . . .	Defective " . . . . .	"
Alopecia . . . . .	Baldness . . . . .	"
" <i>areata</i> . . . . .	" in patches . . . . .	Various causes; chiefly seborrhea.
Sycosis . . . . .	Inflammation of hair follicles . . . . .	Some tropho-neurotic, others microbic.
Dermatitis papillaris capillitii . . . . .	" and keloid . . . . .	Pus cocci.
		"
		"

## D. NAILS—

Pterygium . . . . .	Overlapping of nail fold.
Onychia . . . . .	Inflammation in matrix.
Paronychia . . . . .	" in and round matrix.
Atrophy . . . . .	Defective growth.
Onychogryphosis . . . . .	Overgrowth.
Onychomycosis . . . . .	Fungus growth in the nail.





## PART II.—SPECIAL.

### CLASS I.

#### HYPERÆMIÆ—CONGESTIONS.

THIS class includes all cases of mere congestion of the skin; but while there are some, like erythema fugax, which are really only congestions, it includes others in which congestion is only a prominent early feature, as there are but few in which the process is not accompanied by inflammatory effusion, unless the primary congestion is speedily relieved. It is therefore to some extent a conventional class, in which congestion is the prominent, but not necessarily the exclusive manifestation.

The clinical symptoms are—redness momentarily removable by pressure, generally increased heat of skin, which itches or burns slightly as a rule, and the seat of the lesion is manifestly superficial, *i. e.*, in the papillary layer.

The shape is indefinite and ill-defined at the border, the size from a mere point to a large patch, the evolution rapid, and the duration a matter of a few hours or days, unless the congestion limit has been passed and the disease has gone on to inflammation.

Hyperemias are active or passive; the active are synonymous with erythema, the passive with lividity of the skin.

Passive congestion is idiopathic and local, due either to mechanical causes obstructing the venous flow, such as tight clothing or bandages, or to exposure to cold. Symptomatic disturbances in the circulation or respiration are more general in their action, and affect the peripheral circulation, especially the extremities, as in cyanosis from congenital heart disease or emphysema.

I know of only one acquired affection of purely passive congestion that would at all attract the special notice of the dermatologist, *viz.*, *congestive mottling in rings*. One instance was

that of a child under Dr. Barlow at the Children's Hospital at Great Ormond Street, in whom, when the legs were exposed, purplish rings about an inch in diameter, with clear centers, appeared slowly on the thighs. Another instance of it was a man with locomotor ataxy, shown by Dr. Lees at the Dermatological Society, on whose legs a similar phenomenon developed when the legs were uncovered; the rings disappeared when the limbs got warm again. In two cases, both girls, recorded by Cavafy,\* there was a similar, but persistent condition, though varying much in degree, cold being an aggravating feature, while it was very faint in warm weather. It disappeared on pressure, leaving slight pigmentation. Both upper and lower extremities were affected, and one girl had had rheumatic fever and was subject to "dead fingers."

In Galloway's † case a woman of twenty-one had congestion of the whole skin from vaso-motor paralysis of the superficial cutaneous circulation. The slightest injury produced a serious lesion.

### ERYTHEMA.

*Deriv.*—*Ἐρύθημα*, a blush.

*Synonyms.*—Rose rash; *Fr.*, Erythème; *Ger.*, Hautröthe.

"Erythema" is the term used to express the clinical aspect of acute congestion, and may be defined as "redness of the skin which disappears for a moment upon pressure." Much confusion has arisen from its being employed indiscriminately for the symptom of redness, irrespective of the cause, and also for two groups of diseases—one the result of hyperemia only, of which erythema simplex is the type; the other due to actual inflammation, of which erythema exudativum is the most important representative. Although they all have the name erythema, it does not imply any relationship beyond the possession in common of the prominent clinical symptom of redness.

Confusion can only be avoided by always using a specific title,

\*"Symmetrical Congestive Mottling of the Skin," *Clin. Soc. Trans.*, vol. xvi., 1883, p. 43, with colored plates and references to Kaposi and Auspitz. In *Brit. Jour. Derm.*, vol. vii., 1895, p. 88, he records a case with patches of redness.

† Shown at Derm Soc., Lond. Reported *Brit. Jour. Derm.*, vol. x., 1898, p. 50.

when erythema is intended to represent a special disease. At the same time it must always be borne in mind that the line between hyperemia and inflammation is a narrow one, and many of the affections which are here classed under hyperemia are only so in the majority of cases, while in others the process goes on to exudation. The distinction is, therefore, often one of clinical convenience rather than of pathological accuracy.

A large proportion of both classes of erythema are of toxic origin, the toxin acting, in all probability, on the vaso-motor nerves. Hence these may be grouped with urticaria, many purpuric eruptions, and pellagra, and are angio-neuroses,\* of toxic origin.

Erythema elevatum diutinum and erythema induratum do not really belong to this group except in name. The nosological position of the first is doubtful, and erythema induratum is placed with scrofuloderma.

### ERYTHEMA HYPERÆMICUM.

In this class swelling is absent or insignificant in the congested areas, and the tint of redness varies from the brightest red to a rosy or purple hue, according to the predominance of arterial or venous hyperemia.

There are two groups: 1. Those of local distribution, due to external irritation; 2. Those of more or less general distribution, due to internal causes.

*Group 1.* includes E. Simplex, E. ab igne, E. Pernio, E. Intertrigo, E. Leve, E. Paratrimma, and E. Fugax.

**Erythema Simplex** is the congestive redness due to external irritation of moderate intensity.

The size and tint of the red patches vary according to the irritant, the individual susceptibility, and the activity of the circulation. The symptoms are generally a sense of heat, perhaps tenderness and itching of varying intensity.

*Etiology.*—The causes are very numerous, and may be arranged under the heads of:

\* Török, in *Archiv f. Derm. u. Syph.*, September, 1900, p. 243, after a long review, concludes that no actual line of demarcation can be drawn between angio-neuroses and inflammations.

1. Friction, or pressure of clothing.
2. Heat, whether of the sun (E. Solare) or artificial (E. ab igne).
3. Cold, of which pernio, or "chilblain," is a familiar example.
4. Stings, *e. g.*, of the jelly-fish.
5. Various irritants—vegetable, such as arnica, rhus, mustard, chrysarobin, etc.; chemical, *e. g.*, acids, alkalies, sulphur, arsenic, mercurial inunction, etc.

**Erythema ab igne.\***—This affection is important chiefly as a matter of diagnosis. It occurs in cooks, stokers, and women who toast their legs at the fire. In the early stage it forms rings of erythema and gyrate patterns on the front of the legs, and in one of my cases they were on the forearms and hands also; she used to sit over the fire with her elbows on her knees, resting her chin on her hands. The rings are from an inch to an inch and a half across, not elevated above the surface; the border, one-eighth to a quarter of an inch wide, of a deep red color, gradually becomes browner in tint, and when the legs have not been exposed for some time to the fire the redness fades and leaves only a deep brown, ringed pigmentation, which even the late E. Wilson \* erroneously ascribed to syphilis. In exceptional cases, in the early stage, there may be vesication on the erythema, following the ringed shape. Perry regards the lesion as essentially caused by the staining of blood, disintegration occurring in and around the walls of the plexus of superficial veins, and the patterned appearance as due to the distribution of these veins. In this he follows Wilks, who compared it to post-mortem staining. In a case Perry showed at the Dermatological Society an unusual feature was that the markings were distinctly raised, which he ascribed to thickening of the walls of the superficial veins. This and the occasional presence of vesication also show that blood-staining is only part of the process, and that his proposal to substitute ephelis for erythema ab igne is not an improvement. No treatment is required. The only thing to do is to avoid the cause, if not necessitated by the occupation.

\* Author's Atlas. Plate XXII., Fig. iv., shows the early stage with vesication in a marked degree.

† "Portraits of Skin Diseases"—Melanopathia Syphilitica, Plate XXIV.

In long-lasting cases the pigmentation is permanent, but fades to some extent in the summer.

**Erythema Pernio.** *Deriv.*—*Πτέρνα*, the heel. *Synonyms.*—Pernio; chilblain; *Fr.* Engelure; *Ger.*, Frostbeule.

*Symptoms.*—People with a feeble circulation (see p. 62) or of strumous constitution, and many young people up to about twenty years, and a few older ones, are very liable to chilblains in the winter, especially in damp, cold weather: they are much less likely to occur in dry, cold weather of greater severity. They commence as ill-defined erythematous patches on the hands and feet, especially the heel and borders of the feet; the redness has generally a dusky hue, and is accompanied by tenderness and intense itching and burning whenever the feet get warm. If neglected, or subjected to friction from the boots or stockings, more distinctly inflammatory symptoms arise, affecting the tissues more deeply; and vesication and superficial ulceration of an indolent character, and even a small slough, may ensue. In persons \* of very feeble circulation, where often the whole extremity is blue from venous congestion,\* the chilblains may occur in comparatively warm weather. The only condition that is likely to give rise to error is lupus erythematosus, which sometimes affects the fingers, chiefly the terminal phalanges, as a permanent erythematous blush; in it, however, the duration will be a test, and it persists in summer as well as in winter; moreover, it is not attended with the itching and burning of chilblains, and there is inflammatory infiltration, with more or less scaliness, followed ultimately by superficial atrophic scarring, but it is not liable to break down and ulcerate. Audry says that pin's-head-sized brown spots often follow chilblains.

According to A. E. Wright chilblain subjects have defective blood coagulability, taking from eight to twelve minutes (three to four minutes is the normal), and pernio is especially likely to occur in childhood and in those subject to urticaria and epistaxis, to the "lymphatic habit," to malaria and hemophilia, all conditions of diminished blood coagulability. Except as re-

\* According to Leslie Roberts, injections with the old tuberculin may produce or aggravate chilblains.

† *Lancet*, January 30, 1897, p. 303.

guards the blood coagulability, he does not bring forward much clinical evidence of these conditions as etiological factors.

*Treatment.*—In this prevention is emphatically the best treatment, and may generally be effected by wearing warm coverings to the affected limbs, with thick boots, not spring-sided, and by active exercise, such as vigorous walking, running, or skipping for children.

The hands should be washed in very hot water, not warm, dried very quickly and carefully, and then enveloped in gloves. General measures of invigoration are often required, and Fowler's solution in small doses, commenced as soon as the cold weather sets in, is said to be a prophylactic.

I have found nitro-glycerin of more service; a tablet, three times a day for an adult, facilitates the circulation through the congested area, and is valuable both as prophylactic and curative treatment. Wright, to improve the coagulability of the blood, gives chlorid of calcium from ten to fifteen grains three times a day with, according to him, marked effect both on the blood and chilblains.

*Remedial Treatment.*—*Internally*, opium was recommended by Skey. Nепenthe, five to fifteen minims three times a day, is a convenient form of it. Ichthyol in capsule three times a day is said to be effectual.

*Locally*, at the commencement, calamin lotion should be applied several times a day; afterwards tincture of iodin, painted on, for the feet, or decolorized with one part of liquid ammonia to two parts of tincture of iodin for the hands, is useful, but vasogen iodin rubbed in is better; it is effectual and does not stain. Equal parts of lin. camphoræ comp. and lin. belladonnæ well rubbed in twice a day, or careful strapping, or wrapping up the foot with cotton wool under a bandage, are also efficacious; so, too, is the old woman's remedy of soaking the part in very hot brine. Ointments of ten per cent. of ichthyol, menthol, or chlorinated lime and vaselin are advocated. Forbes Ross advocates a strong Faradic current for ten minutes three times a day; and Lewis Jones the electric bath for ten to fifteen minutes a day. Two metallic plates as electrodes to an induction coil are placed at the ends of an earthenware footbath filled with warm water.

When the chilblain is broken, boric ointment, spread upon

lint, or wet boric lint covered with oiled silk, should be applied; but, above all, rest and general warmth are necessary. Many other methods have their advocates; but if the preventive measures are simultaneously practiced, and one of the above remedies perseveringly applied, they will be successful in giving relief, but any relaxation in the prophylactic means will soon be followed by a return of the chilblains if the weather is cold; hence the large number of "infallible cures" for this common and tormenting affection.

**Erythema Intertrigo.**—*Deriv.*—*Inter*, between; and *terere*, to chafe. *Synonyms.*—Intertrigo; Eczema intertrigo.

*Symptoms.*—Some class this with eczema, but by most it is admitted to be an erythema. When in a fat person or in an infant two adjacent parts of the skin are in constant contact, the friction, the moisture, and the heat of the parts are apt to give rise to a superficial redness, together with an exudation of a thin muciform or purulent fluid, which differs from eczematous fluid, inasmuch as, while it stains, it does not stiffen linen, but a true eczema develops not unfrequently. In adults it occurs almost exclusively in fat people at the groin, axilla, or neck, but sometimes at the prepuce or vulva, and under the breasts in women. In infants it often occurs in the folds of the neck, but it is most frequent about the buttocks,\* and there is no doubt that the irritation of the wet napkin, whether from urine or feces, is often the exciting cause, and among the poor sometimes, from the urine-soaked napkin being simply dried and used again. The mothers often ascribe it to "thrush," which has "gone through the infant." Many of these cases are really due to congenital syphilis.

According to Parrot there is transitory vesiculation like sudamina at the commencement, and superficial erosions frequently ensue. I have seen the erosions, but not the vesicles; and if they have been there they are seldom present when the child is brought.

*Diagnosis.*—In adults it has to be differentiated from *eczema*.

\* Hodara has written a paper on the "Histology of Erythema of Infantile Buttocks," and gives references to several French writers with whom it is a favorite topic.—*Monatsh. für Derm.*, vol. xxvi. (1898), p. 325. Also French *Trans. Mal. Cut.*, vol. xi. (1898), p. 465.

The difference in the exudation, the position, and circumstances under which it occurs, are sufficient generally to determine the nature of the lesion, but in some cases eczematous inflammation actually supervenes.

In infants the buttock eruption has to be distinguished from *congenital syphilis*, which often manifests itself as erythema of the buttocks; but whereas intertrigo is almost invariably limited to the site of the napkin, the erythema of congenital syphilis extends down the legs often to the heels and soles, and ulceration and other signs of syphilis would generally be present; at the same time it must be borne in mind that congenitally syphilitic children are more liable to ordinary intertrigo than others.

Max Meyer thinks he has found the pathogenic micrococcus.

*Treatment.*—In adults dessicating powders should be freely dusted on to the affected parts, and a piece of lint placed so as to separate the two surfaces, or the powders may be placed in Unna's powder bags (see p. 88). Good applications are oxid of zinc, one part to three of starch, or one part of oleate of zinc to three of kaolin, finely pulverized; and powdered boric acid diluted with kaolin, or the Sanitary Rose powder, is also useful. In a few cases powders do not suit as well as an ointment, and then boric acid gr. 20 to  $\frac{3}{4}$  j adip. benz. or vaselin is a good application. In others the lactate of lead lotion, constantly applied, is one of the best. In infants, especially with diarrhea, care should be taken that the napkins are changed at once when wetted, the parts cleaned and carefully dried, and the powder or ointment applied; in these cases the ointment is preferable, as the moisture less easily affects the greasy skin. In all cases the parts should be sponged twice a day with a weak disinfectant solution. Lysol 3 i, aquæ distillæ  $\frac{3}{4}$  viij is a good example. Diarrhea and other defects of health must always receive special attention.

**Erythema Leve** is applied to the redness frequently seen in edematous limbs, and occurs chiefly on the legs; here there is of course swelling from the anasarca; the skin looks bright red, tense, and shining, and there is, no doubt, more than mere hyperemia; unless the tension of the skin is soon relieved, vesication and ulceration, and even sloughing, may ensue. The term is not so often used now as formerly.

**Erythema Paratrimma** is an almost obsolete term for the erythema over a bony prominence, etc., that precedes the formation of a bed sore; here, also, the process soon goes on to inflammation.

**Erythema Fugax** is, as its name implies, a transitory redness of a patchy character, which comes out quite suddenly, mostly upon the face or trunk, chiefly in the young, and after lasting from a few minutes to a few hours gradually disappears. In children it is frequently associated with irritating ingesta, worms, or other cause of irritation of the intestinal canal. Getting heated by exertion, or alternations of temperature, or even mental emotion, will sometimes produce it, but the cause is often obscure. The affection is more allied to urticaria than to the other erythemata.

The *treatment* is conducted upon the same principles as that for urticaria, which see.

**Erythema Urticans** is only the early or subsiding stage of the urticarial wheal, which is then of a uniform pink color. See, Urticaria.

*Group II.*—This group, according to the definition, would include many of the exanthemata, such as scarlatina, measles, rōtheln, beri-beri, etc., and such diseases as pellagra, but the eruption in most of them is the least important element, and all but the last are formed into a separate group on other grounds. It includes also the eruptions produced by many drugs in certain individuals, from some special idiosyncrasy, but all these are referred to under their appropriate heads, and some descriptive adjective is usually added to point out the character of the erythema.

The varieties now to be considered are *E. roseola* and *E. scarlatiniforme*.

**Erythema Roseola.**—Roseola is a term used by some authors to designate some forms of erythema which are of not quite so bright a hue as the others. The distinction is superfluous, but as the term is in common use it must be explained; if retained, it would be better to use it as a specific title to the generic erythema, or for general as opposed to local erythemata. It may be idiopathic or symptomatic.

IDIOPATHIC ROSEOLA occurs mainly among infants and young children. Its onset is generally attended with constitutional symptoms—a transitory elevation of temperature, sometimes amounting to three or four degrees, restlessness, quickened pulse, furred tongue, and perhaps some redness of the palate and fauces, but there are no catarrhal symptoms. After a short but variable period the eruption appears; it may be general or partial, affecting the whole body or only a limb, the face or neck; it is very variable in size and shape, at one time in patches the size of the end of the finger, at another faintly papular, or it may be in rings or gyrate figures; it may come at one place and go at another, and so last several days. Willan gave separate names to some of these phases, such as *R. infantilis*, *æstivalis*, *autumnalis*, *annulata*, but they are entirely superfluous, and have deservedly dropped into disuse.

*Etiology.*—Though these eruptions are most commonly seen in children, they may occur in older persons, and both sexes are equally liable to them. In some children the eruption comes out every spring and autumn, and it often appears to be due to disorder of and absorption of some noxious substance from the alimentary canal. When seen in adults it has been ascribed to suppressed gout, changes of temperature, acidity, and many other causes, which are often merely an excuse for our ignorance of its origin.

SYMPTOMATIC ROSEOLA.—This may be patchy or diffuse, morbilliform or scarlatiniform, and may occur either in the onset or course of a large number of febrile or other affections. As the rash is only a part of these diseases it does not require a separate description, the circumstances under which it occurs being of chief importance.

Diffuse or large patches of erythema may precede or accompany the outset of the more characteristic eruptions of vaccinia, variola, and less frequently of varicella; it may also be occasionally observed in the algid stage of cholera, in diphtheria and malaria; the last is sometimes called *roseola febrilis*. Less frequently the eruption in any of the above diseases may be scarlatiniform or morbilliform. This patchy erythema or an urticarial rash may also be seen in influenza and dengue, but in these scarlatiniform or morbilliform eruptions are much more frequent, and purpura occasionally occurs. Small patches the

size of the end of the finger, of a dull red color, are the usual accompaniment of the onset of syphilis, and very often of leprosy; but, as a rule, the patches in leprosy are larger and persistent.

It is a futile distinction to try and discriminate between morbilliform and scarlatiniform roseola on the one hand, and erythema scarlatiniforme and erythema morbilliforme on the other. Simply a slight degree of lividity is more apparent in the so-called roseola, but this depends more on the individual than the cause. Similarly, the individual rather than the cause determines whether the rash shall be morbilliform or scarlatiniform, and indeed, whether there shall be any rash or none is often equally the result of idiosyncrasy.

**Erythema Scarlatiniforme** is the form which the rash takes in the great majority of the cases. It may appear sometimes quite suddenly, punctiform, erythematous, and exactly resembling scarlet fever in most of its features; but it does not begin in any special position, and it is common to find the eruption sharply defined in places, especially beside the nose if the face is attacked, leaving a tract of, by contrast, preternaturally white skin between the two hyperemic areas. In a large proportion of cases the face escapes altogether. The punctiform appearance is not always preserved, the redness becoming continuous, and, as in other erythematous eruptions, the red skin is whitened for a moment when the finger is drawn across it. There is some constitutional disturbance, usually slight, the temperature being 100° F. or 101° F., and sometimes higher, but soon subsiding, and the fauces are reddened more or less.

If the general symptoms are severe, they are due to the disease in whose course the eruption appears. The subsidence of the rash, which occurs in from two to six days, is usually, but not always, followed by desquamation, furfuraceous as a rule, but it may be free and in large flakes, according to the intensity and duration of the erythema. The special recurrent form is discussed separately.

*Etiology.*—This is not always ascertainable, and such cases are euphemistically termed idiopathic. Besides the causes already stated, it is seen not infrequently in the course of acute

rheumatism; in septicemic conditions, as after surgical operations, but not often from this source, now that antiseptic precautions have been generally adopted; where pus is shut up in a cavity, *e. g.*, abscesses, tubercular peritonitis, and empyema, and associated with carbuncle, I have also seen a discoid erythema with this connection; in gonorrhea, even where no copaiba has been given; preceding, or in the course of enteric fever, according to J. W. Moore, at the end of the first or in the third week, the first being of vaso-motor origin, the second being septicemic; in puerperal women, and in children in the course of pneumonia, ague, and after diphtheria antitoxin serum; in uremia (see p. 59), and tuberculin injections (sometimes morbilliform, or even patchy or urticarial).

Berg \* found that the normal serum of some horses would produce these rashes, but the analogy with tuberculin suggests that diphtheria toxin may be a potent factor. Moreover, such rashes occur in the ordinary course of some cases of diphtheria, and it is observable that in a large proportion of cases toxins are the probable cause, whether absorbed from within or from without the body.

I have also seen it in sewer-gas poisoning with an ulcerated throat, commencing on a level with the nipples, sharply defined there, and spreading nearly all over the body, and in a case with artificial anus, auto-intoxication from the bowel was reasonably probable (Lépine and Molière). I have also seen a typical morbilliform eruption with congestion of mucous membranes, and fever preceded by a general corymbose urticaria, clearly traced to a mass of retained feces. Scarlatiniform eruptions are not uncommon after the use of enemata, and are probably due to the solution of the toxins by the enemata and their subsequent absorption.

A precisely similar eruption occurs after certain drugs, especially mercury, copaiba, quinine, belladonna, salicylic acid, etc. (see *Dermatitis medicamentosa*). In the latter class the rash is probably due to irritation of the alimentary canal acting reflexly on the vaso-motor centers. It may also be produced by

\* In connection with this may be noticed Sheild's observation, that when the arterial blood of some patients dries on the skin, an erythematous spot follows and lasts for half an hour or more.—*Brit. Jour. Derm.*, vol. viii. p. 430.

external irritants, especially mercurial inunction, exposure to great heat, etc.

**Diagnosis.**—This is obviously very important in such a rash, but not always easy, or even practicable. From a well-marked case of *scarlet fever* there would rarely be much difficulty; the fauces, though red, are not swollen; the typical strawberry tongue is absent; the temperature is rarely over 100° F., and soon falls; the rash is often not general, perhaps limited to the trunk, with healthy skin between the erythematous areas, and the borders of the erythema are often sharply defined; the characteristic features of scarlatina would be absent, without which it is never safe to make a positive assertion that the disease is infectious. From mild cases of scarlatina some of the above criteria may fail, and then only time will clear up the diagnosis; meanwhile, isolation is the safe course.

From *Measles*.—The morbilliform eruption may resemble the exanthem very closely, but it would often not begin on the forehead, as measles does, and the rash would often not be general; the prodromata, coryza, and other general symptoms of measles, and Koplik's spots on the fauces would be absent. Instead of the temperature continuing to rise after the eruption was out, as in measles, it would soon fall, and the patient would not be so ill, as in most cases of measles.

From *Rötheln*.—There may be much difficulty, as the elevation of the temperature is often transitory in both; but the sub-maxillary, occipital, and sterno-mastoid glands are nearly always enlarged in rötheln, and not in the morbilliform rash. There might be evidence of other people being attacked, which would not be the case in morbilliform erythema. In a rötheln epidemic of a hundred cases, Harrison of Bristol met with thirty cases of general erythematous eruption as a sequel or complication.

It must always be borne in mind that the diagnosis of all the exanthemata should never be made on the rash alone, and indeed not on any one or two symptoms, as there is great variation in the development of every feature of these diseases, as regards incubation, prodromata, and general symptomatology, and in doubtful cases a conclusion can only be arrived at by carefully weighing the symptoms as a whole, and noticing accurately how the supposed exanthem differs from the usual type,

remembering that the more fully the rash is developed, the less likely are the other criteria to fail in a real exanthematous fever.

*Treatment.*—No special treatment is required for the rash itself, which will certainly subside in a few days, but the general indications are to clear out the alimentary canal and to protect the patient from alternations of temperature. If there is irritation or tension of the skin, calamin liniment or lotion would give relief, or the inunction of almond oil or other simple fat. Alkaline and bran baths, with friction, facilitate the completion of the desquamation.

**Erythema scarlatiniforme recidivans**, or Recurrent Desquamative Scarlatiniform Erythema (Féréol, 1876). Under the name of Erythema scarlatiniforme desquamativum, Besnier, Brocq,\* and other French authorities describe a relapsing form which is rare, but very important from the difficulty in diagnosis to which it may give rise. As far back as 1769-1770 Warner of Guy's Hospital reported two cases to the Royal Society, and cases have been recorded under various names since; but it is to the above writers that we owe its clear differentiation. Brocq considers that it is a benign form of pityriasis rubra, but the fact that after each attack of erythema there is a single exfoliation of large masses of cuticle, followed by branny desquamation for a few days only, marks it off from that disease in my opinion.

The disease is probably due to toxins, possibly of more than one kind, absorbed from within, and some drugs, especially quinine, have seemed to be exciting factors of the first attack.

The essential features are an erythema, diffuse or punctiform, which comes out suddenly, on the upper part of the body first, as a rule, and rapidly becomes universal, often within twenty-

\* And Besnier, "Path. des Érythèmes," *Ann. de Derm.* "Desquamative Scarlatiniform Erythema," *Amer. Jour. of Cut. and Ven. Dis.*, vol. iii. (1885), p. 225, gives a history and succinct account of the disease, also p. 26 of his handbook, 1892. *Philosophical Trans.*, vol. lix. (1769), p. 281; and vol. lx. (1760), p. 451. L. I. Frank of Milwaukee records two cases, and quotes others in *Amer. Jour. Cut. Dis.*, vol. xv. (1897), p. 116. One case was a quinine erythema, and not on all fours with this disease, but in the other case the first attack was excited by contact with rhus toxicodendron, while the recurrences were not traceable to any special cause. *Brit. Jour. Derm.*, vol. xi. (1899), p. 188, is a paper by myself relating two well-marked cases with comments.

four hours. It is preceded and accompanied by more or less febrile disturbance. In three or four days the skin cracks and soon peels off in large flakes, or sheets, so that in some cases a complete cast of the extremities may be thrown off; the nails in one of my cases came away at a later period, and it also occurred in one of Warner's cases, but this, Brocq says, is exceptional, transverse furrows only marking the attack and its relapses. Usually, also, the hair does not fall off. The peeling does not take place everywhere simultaneously, but in the order in which the different regions are attacked, the palms and soles being always the last to be complete. When what may be called the primary peeling is over, the skin is not at once smooth, a furfuraceous scaliness follows, and there is generally a horny plug at the follicular orifices, in some parts almost spiny to the touch, but the skin gets smoother almost every day until a relapse occurs, perhaps in a week or ten days from the onset, and again there is febrile disturbance and general erythema followed by desquamation, but the relapse is less severe than the primary attack. These relapses may be repeated many times, but the attacks as a whole generally terminate in six or eight weeks, and if there are no relapses in a week or ten days. A private patient of mine had four attacks of complete peeling in five years, the fourth after an interval of four years, the other three being in the first twelve months. There was only slight redness of the skin for three or four days before the peeling commenced, and no general disturbance. The redness always started on the left shoulder, which had been blistered a year before the first attack.

Recurrence is common, especially in rheumatic and albuminuric patients (Arnozan's case five times), and the recurrences take place at intervals of once or twice a year or more. One of my patients had five in seven years, while one of Tilbury Fox's \* had nearly a hundred. Brocq says that the first is the most severe, and the succeeding ones become milder, but recur at shorter intervals; but in a case of mine the reverse happened, the first being a mild one and the second and subsequent ones severe. The general symptoms vary considerably: lassitude, shivering, aching, and perhaps swelling in the joints and shoot-

\* Third edition, p. 253. Probably this was only a *façon de parler*, but it shows the recurrences were very numerous.

ing pains along the limbs, with a rise of temperature from 100° to 103° F., and occasionally slight redness of the fauces and conjunctivæ precede the erythema for a few hours or days (three in a case of Brocq's), but soon subside after the eruption is fully out, and the patient ceases to feel ill, except for the burning, tension, and occasionally itching of the skin, when the disease is at its height. In a case of Carrier's\* of Detroit pemphigus foliaceus developed, but as it only lasted two weeks this diagnosis is questionable.

*Etiology.*—The first attack occurs most frequently between thirty and forty, but no age is exempt. More men than women have been attacked, and Brocq says dry-skinned persons are more liable to it. My first case said that her skin had been rougher and drier, and that she had ceased to perspire after her first attack, so that possibly Brocq has mistaken the sequel for the cause. I had a patient in whom an attack of scarlatiniform erythema, with elevation of temperature and desquamation, occurred just after each of three successive confinements. In one of them a diagnosis of scarlet fever was made by a physician to a fever hospital. Possibly this is not quite the same as the other cases, and is more allied to the scarlatiniform eruptions not very rare after some drugs, such as mercury, quinine, etc., or they may be all of the same nature with different exciting causes. It is not improbable that all the cases, except those from drugs, are due to absorption of toxic products self-manufactured under varying conditions, at which we can at present only guess.

*Diagnosis.*—The rapid and universal invasion with an erythematous efflorescence, followed by desquamation in large patches a few days from the onset, the tendency to relapse, and sooner or later to recur at intervals of months or years, are the most characteristic features. The chief difficulty would be to differentiate it from scarlet fever in some cases. In the absence of history of previous attacks the most important points are—the extremely short duration of the prodromal symptoms, the development of the rash not corresponding to the rule of scarlatina, the temperature not being raised so much as would be expected from the full development of the rash, if it were really

\* A. E. Carrier, "Proceedings of Michigan State Medical Society," 1889. His second case was possibly due to quinine.

scarlatina, and the abrupt commencement of the desquamation after three or four days in large flakes; and these would, if all the symptoms were taken together, render a decision possible. From the more typical form of pityriasis rubra, the non-persistence of the exfoliation in scales, and the relapses every few days, would make a differentiation, as well as the short course as a whole, whether with or without relapses.

*Treatment.*—This is simple. A uniform temperature is important, with rest in bed and locally inunction with olive oil or other emollient to relieve the tension of the skin. These are the chief indications. As the theory that the eruption is due to a toxin is very probable, full doses of perchlorid of iron might be administered. In one of my cases salicin appeared to check a relapse and there were none afterwards, so that it would be worth trying in future cases.

Brocq includes as examples of relapsing desquamative erythema cases of the curious rare congenital condition called "deciduous skin" or keratolysis,\* in which the person possesses a skin which, like the serpent's, is cast off periodically, that of the limbs coming off like a glove or stocking. A case of a woman who had done this every month or six weeks from the age of seven if not earlier is recorded by Chevalier Preston of Canterbury, New Zealand, and another by Frank and Sandford of Chicago of a man æt. thirty-three, who from the first year of his life had shed his skin on July 24, each year between the hours of 3 P. M. and 9 P. M. Constitutional febrile symptoms were experienced, and intense redness of the skin ensued; the whole process of exfoliation was completed in twelve days, while in early life it was completed in five days. I have met with a case of a man with tylosis palmæ in whom every autumn the thickened skin was cast off, but the process occupied two months. Klotz reported a very similar case which recurred every spring preceded by nausea and pain in the stomach; this condition had, however, only been present five years. In Sangster's case, a

\* *Literature.*—I. *Lancet*, October 22, 1881, p. 703.—II. Quoted in *Med. Press*, September 9, 1891, and republished as a fresh case by J. M. Sligh, *International Med. Magazine*, June, 1893; abs. in *Brit. Jour. Derm.*, vol. vi. (1894), p. 30.—III. *Brit. Jour. Derm.*, vol. iii. (1891), p. 172.—IV. *Amer. Jour. Cut. and Gen.-Urin. Dis.*, vol. xi., 1893, p. 30, he refers to Polotebnow's observations, *Monat f. Derm.*, 1887, Supp.—V. "Congenital Exfoliation of the Skin," Sangster, *Brit. Jour. Derm.*, vol. vii. (1895), p. 37.

man æt. twenty-four, from the age of three years the skin was continually exfoliating, without any sign of inflammation, in large and small pieces everywhere, except the palms and soles, which were thickened and sodden from hyperidrosis. In hot weather he perspired in other parts of the body also. In addition, he was subject to three or four exacerbations yearly, in which the skin peeled off like hop scales by handfuls every day. Sangster regarded it as due to a congenital malformation. This case is allied to ichthyosis.

## CLASS II.

### EXUDATIONES—INFLAMMATIONS.

THE various forms of dermatitis constitute a large group, comprising many of the most important and common diseases of the skin, such as eczema, psoriasis, acne, and varieties of lichen. Such diseases as urticaria and pemphigus are also included, though Auspitz and some other dermatologists do not regard them as true inflammations; but the distinction is more theoretical than practical. Acne, sycosis, miliaria, and some others, though belonging to inflammations, are, for convenience' sake, described with the other diseases of the appendages of the skin. Inflammations of the skin are very diverse in their origin, course, and external manifestations, the one connecting link being the presence of inflammation in all of them.

The symptomatology, also, is very wide, almost all forms of primary and secondary elementary lesions being present in one or other of the group. The process may single out one of the skin structures for its chief point of attack, or affect them all, or take only the superficial or the deep layers. Thus, while all layers may eventually be affected, in psoriasis the most conspicuous changes are in the rete; in eczema, in the papillary layer; in carbuncle, in the deeper layers; in acne, the sebaceous glands are primarily affected; in lichen and sycosis, the hair follicles; in miliaria, the sweat glands or their ducts.

A few, like erythema exudativum or herpes zoster, run a pretty definite course; but most, while they may be acute or chronic, tend to go on indefinitely, unless efficiently treated.

#### ERYTHEMA EXUDATIVUM.

This group includes *E. multiforme*, *Herpes iris*, *E. nodosum*, and *Peliosis* or *Purpura rheumatica*.

They are all acute inflammatory eruptions, which occur in attacks, each running a short course, but with a strong tend-

ency to relapse (except *E. nodosum*) either at short or long intervals. They are characterized by symmetrical, raised lesions of some deep shade of red, extremely diverse in size, shape, and degree of elevation. Some or all of the lesions may, in certain cases, become vesicular or hemorrhagic.

**Erythema Multiforme.\***—As its name suggests, this disease presents a most varied aspect, chiefly from differences in the size, shape, color, and aggregation of the lesions, but also from the occasional formation of vesicles or bullæ upon, or the occurrence of hemorrhage into, the primary lesion. To these phases different names have been given in past times, which will be explained in the description; they serve to express briefly the aspect presented at the moment to the observer, and they will, probably, be retained, as the eruption is often limited to a particular phase in certain individuals, and that, too, in every successive attack.

**Symptoms.**—The onset of the eruption is usually preceded and accompanied by constitutional symptoms, slight as a rule, but sometimes of considerable severity. They consist of pains in the joints, and perhaps malaise, slight pain in the head, back, and limbs, gastric disturbances, and sometimes even enlarged spleen; these symptoms, with a temperature of 100° to 104°.5, and a corresponding pulse rate, may lead to the suspicion of acute rheumatism. On the other hand, in many cases, some or all of these symptoms are absent, very slight pains in the joints being the most constant. After a varying interval of from a few hours to four days the eruption appears, usually upon the backs of the hands and feet, and subsequently in crops upon the face and rest of the limbs, rarely on the trunk, and it is especially abundant round the most painful joints. The temperature may fall upon the outbreak of the eruption, though it may keep above

\* Author's Atlas, Plates I. to III., illustrates *E. papulatum*, *tuberculatum*, *circinatum*, *iris* (erythematous and vesicular), *nodosum* (forearm). A good plate of *E. nodosum* on the legs, Syd. Soc. Atlas, Plate XXI.

**Literature of Erythema.**—Lewin, *Berlin klin. Wochenschr.*, No. 23, 1876, and *Charité Annalen*. Bd. iii. p. 622; Moritz Kohn (Kaposi), *Archiv für Derm. u. Syph.*, vol. iii. p. 381; Lipp, *Archiv für Derm. u. Syph.*, vol. iii. p. 221. Schwimmer, "Die neuropathischen Dermatosen," p. 101; Osler, "The Visceral Lesions of the Erythema Group," *Brit. Jour. Derm.*, vol. xii., 1900, p. 227.

the normal for some days, or it may continue to rise until the rash is fully out.

The extent of distribution of the eruption is very variable, for, whilst it may be general, including and even commencing in the mucous membranes of the eye, tongue, and mouth, it is often limited to one or two regions; but whatever other parts may be affected, it is seldom absent from the back of the hands. Although symmetrical in the main, the symmetry is not absolute, the eruption being often more developed, or coming out earlier, upon one side than the other.

It must not be supposed that the following description applies to all cases; indeed, it is only in a very few that all forms can be found in the same patient; generally the eruption stops short at one or other phase, and then, after a short time, involutes without further development, and each succeeding attack generally recurs in the same form. *E. papulatum* and *iris* are the forms most frequently, and *E. marginatum* the least frequently, seen alone. Occasionally, instead of spreading by successive crops, the eruption of *E. papulatum* will come out suddenly and extensively.

The eruption commences in the form of groups of deep red papules, from a pin's head to a small split pea in size, slightly raised, and obtusely conical or convex (*E. papulatum*); these speedily enlarge, and if very closely arranged at first, they may coalesce into a slightly raised, deep red plateau or patch; or, if discrete, may enlarge to the size of a nodule or tubercle (*E. tuberculatum* or *tuberosum*); continuing to develop peripherally, the center becomes depressed, of a purplish hue, and a ring is formed\* (*E. circinatum* or *annulare*). As the effusion is absorbed in the center and spreads at the periphery, zones of color may be produced, varying from purple to pink, and constituting *E. iris*; still enlarging, and meeting adjoining lesions, the ring is broken, and gyrate curves are produced (*E. gyratum*).

Closely allied to this is *E. marginatum*, which generally begins as a flat disc a quarter or half an inch in diameter, and very rapidly enlarges at the periphery, subsiding *pari passu* in the central older part; joining similar adjacent lesions, it forms

\*A very fine example is depicted in Plate XXIV., Sydenham Society's Atlas.

a sinuous broad margin, abruptly limited externally, and sloping internally, rolling onwards, as it were, it traverses the circumference of a limb, or a large area on the trunk, in a few days, leaving in its track fawn-colored pigmentation, which disappears very slowly.

As the groups of papules come out in crops, each crop undergoing similar changes, several of the various phases described may sometimes be seen simultaneously on different parts of the body, fairly earning Hebra's title of "**E. multiforme.**" As accidental features, vesicles or bullæ may form on any of the above lesions (**E. bullosum**), or hemorrhages may occur into them, and the affected extremities are sometimes livid and edematous. More or less brownish staining of the tissues is almost always left.

*Duration.*—The duration for all forms appears to be usually from two to four weeks, but many cases by a close succession of attacks go on for a much longer period. Colcott Fox\* records two cases in which a brother and sister had never been quite free from *E. gyratum* for sixteen years, the disease commencing in early childhood, and they had severe attacks every three months, with a constant succession of minor ones. These, however, were anomalous cases; and Pye-Smith,† who also had the cases under his care, took a different view of them.

*Children.*—The general symptoms, especially the elevation of temperature, are often more marked. The lesions are apt to be more severe, and the contents, if any vesicles form, more apt to become purulent and leave scars. The eruption appears to be less frequently, simultaneously multiform.

*Etiology of Erythema Exudativum.*—The frequency of all forms together is 11.4 per 1000.

*Age.*—Though no age appears to be exempt, young adults are the most frequently attacked. The youngest case in my experience was a case of *E. papulatum* in a child of five months; the oldest, an *E. marginatum* in a man of seventy-one years, but it is rare in elderly people.

*Sex.*—The preponderance of evidence is in favor of all forms

\* *Clin. Soc. Trans.*, vol. xiv. p. 67, with colored plate, and "Internat. Atlas," Plate XVI.

† *Guy's Hospital Reports*, vol. for 1881.

being more common in the female sex, though Hebra said it was most frequent in males.

*Season.*—It is most frequent in spring and autumn, especially the month of April, but in many instances cold weather is an excitant.

Previous attacks certainly predispose to others, and their recurrences tend to come out at the same time of year as previous attacks. Hebra says that roseola cholericæ is really an *E. papulatum*, that cholera is the only definite cause he knows of, and that it is never due to local irritation; but this is an error. I have had cases, in one of which exposure of the extremities to cold, in another exposure to the sun, and in a third exposure to brine-laden winds, were certain excitants for *E. papulatum*; one of these patients was a medical man, who was quite certain about its origin.

Nevertheless, such instances are exceptional. Though unable to get definite proof, I am strongly of opinion that sudden alternations of temperature, especially chills after having been overheated, are frequent determining influences, and that the rheumatic and gouty are more likely to be influenced by it. Lewin and Kaposi agree that irritation of the urethra, *e. g.*, from gonorrhea or instrumental erosions, is another excitant, and Duhring thinks that irritating ingesta may produce it; but these cases are more probably urticarial. In a large number of cases no irritating or exciting cause can be discovered.

*Pathology.*—Cordua and Luzzato have independently found cocci in the blood and lesions of patients suffering from erythema multiforme, and Manssurov found bacilli and spores in four cases. These they believe to be the *materies morbi*; and many writers, both in France and Germany, regard it as an acute specific disease, usually, but not always, of a mild type, founding their opinion on the frequent presence of premonitory symptoms of a febrile character, the fairly definite course, and the occasional endemic outbreaks. These views require further proof before they can be definitely accepted, but they are worthy of consideration. Turning to the pathological mechanism of these eruptions, that they are not merely the result of hyperemia is evident even from their clinical features alone, and the anatomy also shows that there is inflammatory effusion both of fluid and leukocytes. The fluid is usually only sufficient to push up

the epidermis into a papule or nodule; but in herpes iris, and occasionally in the other forms, it is in larger quantity, and forces its way between the rete cells and forms vesicles or bullæ.

Lewin,\* Auspitz, and Schwimmer† consider them all angio-neuroses, and that the effusion is due to a vaso-motor disturbance when there are no febrile symptoms, and to true inflammation when general symptoms are present. That there is an escape of blood-coloring matter into the tissues is evidenced by the staining left after the departure of the rest of the lesion, and actual rupture of vessels and hemorrhage is the rule in peliosis rheumatica, and an occasional feature in all forms of erythema; in some of these hemorrhagic lesions sloughing occurs.

**Anatomy.**—In a patch of *E. tuberculatum* ‡ excised from the side of the neck of a man æt. fifty-four (Fig. 10) I found the upper half of the corium broken up, and the space filled with cell infiltration, very dense in some parts and looser in others, as if separated by fluid. The cell infiltration sometimes extended sparsely to the bottom of the corium, especially along the hair follicles and sweat ducts, but it was, for the most part, confined to the upper half. In some places there was slight proliferation, and consequent thickening of the rete, and the palisade cells were stained with blood-coloring matter. There was no downgrowth of interpapillary processes, and the horny layer was unchanged. The changes, therefore, were essentially those of inflammation of the upper part of the corium.

In the lesions of an *E. papulatum* of the back of the hands and feet in a case of severe diphtheric throat Finger § found edema with moderate mono-nuclear cell infiltration, especially in the papillary layer and in the deeper part in the course of the vessels and round the several glands and ducts. The papillary vessels were filled with streptococci pyogenes.

**Diagnosis.**—The multiform and changing aspects of the eruption, the acute onset, the occurrence in crops, the localization to certain regions, the symmetry, the persistence for days of indi-

\* *Berl. klin. Wochenschr.*, No. 23, 1876.

† Schwimmer, "Die neuropathischen Dermatosen," p. 101.

‡ Leloir has also investigated the anatomy of this and some other forms of erythema. Abs. *Annales de Derm. et de Syph.*, June, 1885; and also Plates XIII. and XIV. of Leloir and Vidal, 1891. Ziegler describes a case of *E. multiforme* as due to streptococci from middle-ear disease, *Path.*, vol. i. (1901), p. 601.

§ "Beitrag zur Aetiologie u. Path. Anat. des Erythema Multiforme," *Archiv. f. Derm. u. Syph.*, vol. xxv. (1893), p. 765. Full abs. in *Annales*, vol. v. (1894) p. 103.

vidual lesions, leaving staining behind, the comparatively slight itching, the tendency to recur at the same season of the year and to be associated with articular pains and febrile symptoms, are the most diagnostic features. It may be confounded with urticaria, r  theln, E. nodosum, and papular eczema.

It is only when the wheals of *urticaria* are red or pink instead of white that any difficulty can arise; to the common white wheals there is no similarity. In urticaria the wheals are evolved



Fig. 10.\*—Erythema tuberculatum from the side of the neck,  $\times 125$ .

*a*, Epidermis; *b b*, round cells between the fibers of the upper half of the corium, which are widely separated, probably by serous effusion; *c*, blood-vessel; *d*, normal corium. The dark round bodies beyond *d* are transverse sections of muscular fibers.

in a few minutes, are never such a deep red as in erythema, do not begin as papules and increase at the borders, but attain their full size at once, and are not symmetrically arranged; there is intense throbbing and itching, usually moderate in erythema, except in herpes iris, and it is rare for urticarial lesions to persist for more than a day, or to leave stains behind. There is no tendency to special localization and seasonal recurrence in urticaria, and the outbreak can frequently be traced to irritating ingesta, though external influences play an important part; special constitutional symptoms are almost always absent,

\* The case from which this was taken is recorded by Tilbury Fox, *Clin. Soc. Trans.*, vol. xi. (1878), p. 85.

though a slight rise of temperature in very acute and extensive outbreaks may occasionally be observed. In the vast majority of cases reference to these points settles the matter conclusively, but sometimes there is a difficulty in separating urticaria from general papular erythema, as the evidence may be so evenly balanced that different observers may take opposite views.

*Rötheln* is only to be confounded with *E. papulatum*.

In both *rötheln* and erythema there may be transitory and moderate elevation of temperature, or none at all, but the other general symptoms are very different; catarrh of the pharyngeal, tonsillar, and other mucous membranes, with enlargement of the glands behind the sterno-mastoid, are present in *rötheln* and absent in erythema, and there are no special articular pains in *rötheln*. The latter eruption begins on the face and forehead, and spreads over the body. The spots are round or oval, not flat, generally remain small, and are of rosy red, never deep red like *E. papulatum*, and less frequently confluent.

In *eczema papulatum* the papules are acuminate, small, and remain so, and some of them usually become vesicular, while the burning and tingling is much more severe, and constitutional symptoms are absent.

*Prognosis*.—The disease is almost sure to get well in from one to four weeks, leaving only stains, which disappear a few weeks later, except in the rare instances in which there are pustules, when there is likely to be scarring; all forms, except *E. nodosum*, are nearly sure to recur, probably at the same time, in the following year. When associated with endocarditis and the other serious conditions mentioned, the prognosis concerns the disease with which the eruption is the concomitant, rather than the erythema.

*Treatment*.—Since the eruption tends to get well of itself in a short time internal treatment is seldom required, and it is doubtful whether it has any direct influence upon the course of the disease; still, any indication in the shape of defective health should be carefully sought for, and if possible rectified. If the presence of a rheumatic diathesis can be established, salicin or salicylate of soda in gr. 15 doses three times a day, or an acetate and citrate of potash mixture might be given. An effervescing citrate of potash mixture with quinine gr. ij or iij in each dose of the acid portion is a good combination in many cases. In





ERYTHEMA IRIS.



ERYTHEMA IRIS.

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middle-aged or elderly people gouty tendencies should be looked for and counteracted. In a large number of cases iron with an aperient, such as the elder Startin's mixture (Mixtures, F. 16), is useful. Iodid of potassium is considered to be a specific by Villemin; thirty grains a day cures it, he says, in three or four days. Locally, calamin lotion is all that is required, and if there is much pruritus the addition of liquor carbonis detergens gives temporary relief. In obstinate cases, when fresh crops keep appearing, rest in bed, insuring complete protection from alternations of temperature, is often sufficient of itself to terminate the eruption. When any debility is present careful feeding up is necessary, but alcohol is seldom desirable, and is generally contra-indicated. Relief from mental or bodily strain should be afforded as far as possible.

In herpes iris the patients are often much out of health, and feel weak and languid, and then iron, quinine, and cod-liver oil would be required. Locally, the itching and burning are best relieved by lead lotion, consisting of liq. plumbi subacetatis ℥ xv to aquæ 3 j; or lactate of lead applied on lint.

**Erythema or Herpes Iris.**—This is always an uncommon affection (1.6 per 1000), but the first variety is much more frequently met with than the second. The mechanism of erythema iris has already been described, but while the general history is the same as that of E. multiforme, its great variability of aspect necessitates separate description.

In the usual types of erythema multiforme vesication is the exception; in these forms it is the rule; moreover, the varieties with which we have now to do seldom occur as a part of E. multiforme, but nearly always arise independently. The difference of aspect between the simpler erythematous form and the vesicular form is so great at first sight that they were for a long time considered to be different diseases, but all intermediate gradations and their general behavior prove them to be only variations from a type.

The common plan of all of them is a central lesion of papule, vesicle, or bulla, and one or more concentric circles round it; in Plate AZ of Wilson's Atlas no less than seven circles of fluid with intermediate purplish zones round a central vesicle are depicted, while the simplest type is in Plate I. of my Atlas. In

this there is simply a one-quarter-inch disc of erythema with a central purplish dot where the central papule subsided as the lesion extended peripherally.

The commonest vesicular type usually begins with a stinging and itching sensation, soon followed by a small, slightly raised red spot, and upon this, in about twelve hours, a conical pin's-head-sized vesicle is formed. The vesicular part increases in diameter, flattening as it does so, but always with a narrow red areola on its outer border. When the lesion is about a quarter of an inch in diameter the fluid is absorbed in the center, and a purplish depression results, or a ring only of absorption occurs, and then a vesicle will remain in the center surrounded by a purplish depressed zone, and outside this a raised ring, white from the fluid beneath, and beyond this the narrow pink areola. This constitutes a typical patch, and it is from these different-colored concentric rings that the name of iris is derived.

In a mild case, when the disc has reached to about half or an inch in diameter, which generally occurs in about a week, it soon begins to involute, the areola fades, the fluid is absorbed, and the disc flattens down, leaving only a purplish discoloration; the whole process being complete in about a fortnight. The favorite positions are the backs of the hands and fingers, especially the thumbs, index and middle finger, the elbows and wrists, the insteps and knees. The lesions are generally symmetrical, though often the corresponding discs are several days later than the first, and are perhaps less developed. As the discs come out in small crops by repeated outbreaks, the disease as a whole lasts from two to four weeks, or even longer.

*Variations.*—In more severe cases the patches may be much larger by the addition of a similar series of rings, or large irregular patches may be formed by coalescence of neighboring lesions; the amount of effused fluid also varies considerably; the central small vesicle may develop into a large bulla, even up to an inch in diameter, and still larger by coalescence, and there may be hemorrhage into the bulla. Instead of being confined to the extensor aspect of the limbs, it may attack the palms, soles, and other flexor aspects, and also the face and the mucous membranes of the mouth, tongue, palate, and larynx, and in rare instances, the trunk also, so that universal herpes iris may

result; in such severe cases hematuria \* also has occurred. I have also seen it all round and also under the nail,† but the nail substance was not affected. When it affects the mucous membranes ‡ the lips may be much swollen, and covered with vesicles or black blood-crusts on the outside, and with muco-pus inside; the mouth can scarcely be opened, the tongue is swollen, and covered with white lines, the remains of ruptured vesicles; the soft palate and uvula may be involved; the orbital connective tissue is swollen and ecchymosed, and there is conjunctivitis. In one of my cases the mouth alone was affected, attacks of bul-  
lous aphthæ beginning on the buccal mucous membrane, spread over the tongue and mouth without any skin lesion, and re-  
curred every two or three months; after being under observa-  
tion for over a year, erythema iris appeared on the back of the hands in one attack, and the patient then remembered that he had had a similar attack some years before. Such cases are often treated for syphilis, and some are reported as buccal hydroa. Superficial ulceration occurs sometimes when the lesions are rubbed, to which the irritation experienced incites the patient, or when the contents of a bulla becomes purulent.

The second variety is rare. The name of herpes iris was first given to it by Bateman,§ and hydroa vésiculeux by Bazin. In this round a central bulla a ring of vesicles is formed, either quite discrete or touching, but so that their separate origin is evident. The vesicles are about the size of a small split pea, much smaller than the one in the center. A second or third concentric ring of vesicles may form outside the first; between the vesicles and rings the skin is of a purplish tint. The following case showed a slight variation from this description. A girl, æt. two years, was brought to University College Hospital with rings of congestive erythema on the face and neck about

\* A case in the Vienna hospital, reported in *Brit. Med. Jour.*, July 19, 1885.

† Elizabeth M., out-patient, U. C. H. She had annual attacks for ten years.

‡ U. C. H., out-patient Elizabeth J., æt. forty-one, seventh attack; the mucous membranes were as described: round the knees were single and compound bullæ, from half to two and a half inches in the longest diameter. Typical patches were present on the hands

§ Bateman's Atlas, Plate LII. His plate has been repeatedly copied. Hebra's Atlas, Fasc. VI., Plate IV., Fig. 1, shows an extreme instance on the foot.

the size of a crown piece; a few days later these had disappeared, and in the center of their site was a large bulla; round this a ring of discrete vesicles appeared, the contents of which soon became purulent, and when the dried scabs fell off the face was scarred as badly as if she had had smallpox; the child had several slight, almost abortive, attacks in subsequent years, each one slighter than the one before. This recurrence is the rule for all the varieties; the attacks are usually annual, and at about the same time each year, but some patients have three or four attacks per annum.

It is sometimes associated with other forms of herpes, H. facialis, labialis, preputialis, etc.; and on this ground, and because it is vesicular, Colcott Fox would separate this form; but its other features clearly designate it as belonging to erythema, in my opinion.

*Etiology.*—The etiology of erythema or herpes iris is in most respects similar to that of E. multiforme,\* but there is a smaller preponderance of females, 5 : 4 only in my hospital practice. Its tendency to recurrence is also greater. I have known patients who have had three or four attacks a year for twelve years; still, the majority of recurrences are in spring and autumn, though cold is a frequent excitant. In my experience it stands in closer relationship to gout than to rheumatism. Toxic influences also may sometimes produce it, but it is exceptional to be able to prove such to be the case. Thus, mercurial inunction would always produce E. iris in one of Kaposi's patients,† and in another it was the prodromal eruption of variola.

*Anatomy.*—Pardner examined the lesions of a severe and a mild case and found an acute exudative inflammation of the upper part of the corium, accompanied by abundant emigration of polynuclear leukocytes, which rapidly disintegrated and filled the papillæ. He lays stress on this nuclear fragmentation, which was less marked in the mild case. Vesiculation was produced by lifting up of the entire epidermis from the papillæ by the fluid exudation, but Kreibich has shown that it is sometimes intra-epithelial. The appendages of the skin were unaffected.‡

*Diagnosis.*—This will not present difficulties in well-marked cases in which, symmetrically disposed on the hands, knees, and

\* For the Pathology, see that of E. multiforme.

† Kaposi, p. 294, 2d German ed.

‡ J. C. Pardner, in *Bulletin Johns Hopkins' Hospital*, vol. ix., 1898, p. 165. Abs. *Brit. Jour. Derm.*, vol. xi., 1899, p. 171.

insteps, there are several concentric rings of different tint round a central lesion, whether that be a purplish spot, a vesicle, or a bulla—and whether there are rings of fluid, or semi-confluent vesicles, or merely erythema without visible effusion round it; but there is a large proportion of cases in which there is only a central dot and a single broader ring of erythema round, as in Plate I. of my Atlas, or where there are other forms of ill-developed lesions when doubts arise. There are, however, always some lesions on the plan described of one or more rings round a central lesion, and the general behavior will show that the eruption belongs to the *E. multiforme* group. In addition to vesication being so frequent a feature compared to other members of the *E. multiforme* group, articular pains and febrile disturbances are less frequent precursors of the eruption.

*Prognosis.*—This is nearly the same as that for *E. multiforme* generally, but it seldom lasts more than two weeks, and it is even more likely to recur many times in future years.

*Treatment.*—See under *E. multiforme*.

**Erythema Nodosum** (*Synonyms.*—*Dermatitis contusifomis*; *Fr.*, *Érythème noueux*) is a disease of childhood and adolescence, being most common between five and twenty and rare after forty and under three years. It is seen much oftener in girls than in boys.

It is still a matter of discussion as to whether *E. nodosum* is a variety of *E. multiforme*. Certainly, although second and third attacks do occur, they are the exception rather than the rule, as is the case in *E. multiforme* (6 cases in 108 had recurrences, S. Mackenzie; none in 80 cases of A. J. Harrison). On the other hand, it occurs sometimes along with *E. multiforme*, of which I have seen a few instances. In one case there were *E. tuberculatum* lesions with it, and also herpes labialis. Lewin found other forms of erythema in 25 out of 55 cases; but this is not in accordance with usual experience, which is that such an association is an uncommon one. Perhaps the fact that when the lesions are not over the superficial bones they depart from the usual type may account for the discrepancy; nevertheless, it is sufficiently frequent to show that the different forms of eruption are related, and that *E. nodosum* is not an altogether independent type, as many authorities hold.

McCulloch \* gives a very well recorded case of the conjunction in a boy of fifteen with a strong rheumatic family history. I have also had a case of a woman æt. thirty-three, who suffered from E. multiforme of face and back, of forearms and hands, and as that faded, erythema nodosum developed on the shins.

*Symptoms.*—It begins generally with articular pains in the lower extremities, with perhaps some febrile symptoms, an elevation of temperature of three or four degrees Fahr., seldom more, and highest in the evening, a furred tongue, and general malaise; but these symptoms, with the exception of the articular pains, may be quite absent. There is pain and tenderness over both tibiæ, and in one to three days from the onset, roundish or oval, symmetrical, node-like swellings appear, with the long axis vertical over the tibiæ. They come out two or three at a time, but are altogether not numerous, seldom more, and generally less, than a dozen. They vary in size, from a large nut to an egg, are not well defined, but diffused gradually into the surrounding tissues; they are tender and painful, rather firm at first, but soften, and become semi-fluctuating, but never supurate; their color is bright or rose red at first, but they soon get a more dusky hue, and as they disappear undergo the changes in color of a bruise. The eruption usually lasts eight or ten days, but, by the appearance of fresh lesions, may go on for two or three weeks.

*Variations.*—The tumors may come over the ulnæ, and I have seen them over the scapulæ, the condyles of the humerus, and on the thighs. As a rule, these tumors are smaller than those on the leg.

Duhring says E. nodosum may affect the mucous membranes, and in a boy æt. fifteen, under Fleming at U. C. H., there was a split-pea-sized subconjunctival nodule in the sclerotic of the right eye with typical E. nodosum on the legs. Uffelmann † and Oehne, quoted by Duhring, state that it is a bad omen when it occurs in children with a tuberculous family history, and that it is then associated with general tuberculosis. Amongst the many thousand children that have passed through my hands at

\* "A Case of Concurrent Erythema Multiforme and Erythema Nodosum," *Lancet*, April 20, 1901.

† *Vierteljahr. für Derm. u. Syph.*, 1874, p. 174; 1877, p. 230; 1878, p. 324.

the East London Hospital for Children, I have never seen anything to lead me to suppose that there is any connection between tuberculosis and *E. nodosum*; possibly some of their cases in this connection were really erythema induratum.

*Etiology*.\*—S. Mackenzie collected 108 cases from different hospitals, and his statistics are therefore of interest and value.

*Sex*.—He found 5 females to 1 male, Görlitz † in 30 cases found 23 females to 7 males, *i. e.*, only 3 to 1; and Harrison of Bristol in 80 personal cases found 3 to 1.

*Age*.—S. Mackenzie found 69 out of 108 cases occurred between ten and thirty, 14 under ten, 15 from thirty to forty, and 10 over forty. Comby ‡ met with a case *æt.* fourteen months. In Görlitz's statistics over half were under ten years and one was two years old.

There is no special seasonal occurrence or recurrence.

With regard to the relation of *E. nodosum* to rheumatism, S. Mackenzie came to the following conclusion: 1. That *E. nodosum* is frequently associated with definite rheumatic symptoms, *e. g.*, arthritis, sour sweats, sore throats, etc.; 2. That heart disease (endocarditis) may arise during an attack of *E. nodosum*, both in cases in which arthritis is present and in cases in which there is no affection of the joints; 3. That these conclusions justify the inference that *E. nodosum* is frequently, if not generally, an expression of rheumatism, even when no other definitely rheumatic symptoms are present.

Harrison, on the other hand, denies its rheumatic relationship, and believes from his own experience that it never recurs. Görlitz found endocarditis developing in 3 cases in the course of *E. nodosum*, and as antecedents he noted in 3 acute rheumatism, 1 measles, 1 diphtheria, 1 gastric catarrh, anemia in 9 and nothing at all in 15. It also occurs occasionally in the course

\* "On Erythema Nodosum, especially Dealing with its Connection with Rheumatism," by S. Mackenzie, *Clin. Soc. Trans.*, vol. xix. p. 215. A valuable paper, with an analysis of 108 cases. Harrison of Bristol had 80 personal cases in 15,000 cases of skin disease, *Brit. Jour. Derm.*, vol. xii., 1900, p. 250.

† Görlitz, *Münch. med. Wochens.*, 1897, No. 46, p. 1286. Abs. *Brit. Jour. Derm.*, vol. x., 1898, p. 31.

‡ He read a paper on *E. nodosum* in infants at the Soc Méd. des Hôpitaux, reported with discussion *Jour. des Malad. Cutan.*, vol. ii. (1890), p. 356. He denies its relation to rheumatism or to palúdism.

of secondary syphilis, but in these cases syphilis has probably only the same relationship as measles or acute rheumatism.

Boïesco \* of Roumania has found it to be common in children of from two to eight years old, exposed to malaria, especially as an immediate sequel of an ague attack; but this does not appear to be so common in other malarial countries,† so probably there are other factors. C. F. Moore of Dublin, from 12 cases in his own practice, shows that defective sanitation, especially as regards food and drains, is a strongly predisposing cause. Epidemics of it have occurred. In 1858 Gall observed one in Bosnia among soldiers unaccustomed to the country ‡ and bad food; in 1885 Brunn met with a small epidemic in Jutland, and Von Starck of Kiel observed it in sisters. Exposure to the same defective hygienic conditions accounts for these outbreaks without invoking the doctrine that it is an acute infectious disease, as Lewin, Lesser, Harrison, and several French writers suggest. Lannois,§ however, records an instance in which within a week of the entrance of a case of *E. nodosum* into a hospital three other patients in a row of beds opposite the first case developed the disease. Cases occur in association with "glandular fever," diphtheria, and other toxic diseases. H. Levy proposes to divide cases into primary, which comprises cases which are varieties of *E. multiforme*; secondary, occurring in the course of infectious diseases and due to toxins; and thirdly, toxic cases due to drugs, as iodids and antipyrin. The primary cases are also probably due to toxins, so that one and two need not be separated.

*Diagnosis.*—In *E. nodosum* the oval tender nodes over superficial bones, like the tibia and ulna, may be mistaken for the *nodes of syphilis*. If, as occasionally happens, these occur in the early secondary period, when they may be symmetrical, red, and very tender, the similarity to those of *E. nodosum* may be great; but in such a patient the antecedent pains would have been

\* Abs. from *Roumanian Archives of Medicine, Brit. Jour. Derm.*, vol. i. (1891), p. 346.

† Moncorvo of Brazil only saw four cases of *E. nodosum* in a very large number of malarial cases.

‡ It was probably acrodynia, as he confuses that disease with erythema multiforme.

§ *Annales de Derm.*, vol. iii. (1892), p. 585.

severe, and the other symptoms of syphilis well marked, as they would never occur in a mild case.

With regard to the nodes, so common in the tertiary period, the number would be less, except sometimes in congenital syphilis, the development is much slower, they would not be symmetrical, they would be harder at first, would not be red until they had been present for some time, and some evidence of past or present syphilis would doubtless be obtainable. In the rare cases of nodes in children from congenital syphilis there would be for a long period slow development and absence of redness, while the influence of iodid of potassium, a drug which has no effect in *E. nodosum*, would soon be manifested in nodes of syphilitic origin.

The diagnosis from erythema induratum is given with the latter disease.

*Prognosis.*—Recovery takes place nearly always in two or three weeks, and recurrence is rare.

*Treatment.*—*Internally*, if there are febrile symptoms, the diet should be restricted to liquid nourishment for a few days. A saline aperient, followed by iron, the perchlorid preferably, is appropriate to a large proportion; or, in view of its frequent association with rheumatism, salicin, or salicylate of soda, gr. 10 to gr. 15, according to age, three or four times a day, may be indicated. In older people anti-gout treatment or citrate of iron with citrate of potash or iron and aloes, or other aperients, are most suitable; but no routine treatment can be laid down.

*Locally*, rest, with the legs elevated, should be strictly enjoined. In some adults who cannot lay up bandaging carefully, but firmly, with an elastic bandage (*e. g.*, crêpe) is the best substitute. One of the lead lotions just mentioned, applied warm, is usually most grateful to the patient. However marked the fluctuation may be, the nodes should not be opened, as absorption invariably takes place.

In a lady of fifty-five, where the pain was very great, the application of an ichthyol paint made by mixing ℥ iij of ether and spirit, and then adding ℥ ij of ichthyol, gave marked relief to a patient in the hands of Brownlie.

## ERYTHEMA ELEVATUM DIUTINUM.

This disease does not belong to the preceding group, and is only placed here for convenience. The name only refers to the most prominent clinical features, and was proposed by Campbell Williams \* and myself for a rare affection, chiefly of childhood, of which we published a case in 1894. One had previously been published by G. S. Middleton in 1887, and by Judson Bury in 1889. A few other cases have been published since, and Hutchinson has recorded four cases of a somewhat different type, but closely allied in all probability.

My case differs from the rest in the presence of erythema, its recent development (five months), and its involution. In all the others, except a case mentioned by Hutchinson, the lesions have been persistent. I only know of six cases excluding Soemmering's.

The lesions are nodules from a small pea to a bean in size, pink in the early stage, and purplish in those of long standing. Convex at first, they tend to coalesce into irregular lobed infiltrations and to flat raised plaques, but in severe cases distinct nodular tumors are present, even on the palms and soles. In Soemmering's † remarkable case there were huge tumors preventing the hand from closing on the palmar surface; Hutchinson suggests that it should be reckoned in the same category, but it was such an anomalous case that it is better to keep it apart, at all events for the present.

The growths are very firm to the touch and painless. They develop on the extensor aspect of the limbs over the articulations, elbows, knees, and phalanges of hands and feet. They

\* *Literature*.—A case of subcutaneous nodules in the hands of a rheumatic patient. G. S. Middleton, *Amer. Jour. Med. Scien.*, October, 1887. Williams and Self, *Brit. Jour. Derm.*, vol. vi. (1894), p. 1. Colored plate and histology. *Illustrated Med. News*, February 23, 1889, and republished in Hutchinson's *Archives*, vol. ii. (1891), No. 8, Plate LXI.

*Brit. Jour. Derm.*, vol. vi. (1894), p. 144, by F. J. Smith, and p. 148, also republished by Hutchinson in his *Archives*.

Quinquaud has a model in St. Louis Museum, No. 1599, labeled "Fibromes multiples nodulaires des extrémités, histologiquement fibromes fasciculés."

† Quoted and the illustrations copied in Hutchinson's *Archives*, vol. ii., 1891, p. 299, Plates LX. and LXIII.

also affect the palms, soles, and the buttocks and ears. In my case, and in White's quoted by Hutchinson, the tumors underwent involution, but in the others they were persistent for years and would probably be permanent on the hands.

Hutchinson \* has described a disease, of which he has seen four cases, which has some resemblances to the above condition. The patients were all elderly men of florid complexion (the youngest was fifty-six), and all sufferers from chronic gout. The lesions were purple or plum-colored flat patches, much of which was due to venous congestion. The patches began as nodules, which became confluent, and their nodular origin was lost. The surface was smooth as a rule, but sometimes slightly scaly. Almost all the elevation disappeared by continued pressure, but they only paled at the periphery. The patches developed on the sites of pressure, *e. g.*, inside the leg from saddle pressure or after injury, but had no selective affinity for the back of the articulations. They tended to spread and multiply, and persisted throughout life, treatment having no effect upon them. (Compare with Kaposi's idiopathic pigmented sarcoma and Sequeira's † case.)

*Etiology.*—This is remarkable; all but one were females, and all were children or young adults. Either in themselves or in their family history there was strong evidence of gout or acute rheumatism. Bury's case had intermittent albuminuria.

*Pathology.*—They appear to be fibromata of inflammatory origin in the corium. The fact that many of the lesions involute is against their being true neoplasms. Probably they are analogues of the subcutaneous rheumatic nodules.

*Anatomy.*—The histology of a lesion from the knuckle of Williams' and my case showed that the lesion was beneath the epidermis in the deep portion of the corium, all below the coil glands being normal. It consisted of a fibro-cellular structure, which in great part replaced the normal fibers of the corium. The fibers followed the course of the vessels, being horizontal immediately below the papillary layer, vertical or oblique above, and branching horizontally below in the deep portion of the corium. The cells permeated the interstices of the fibers either singly

\* Illustrations of Clinical Surgery, Plate VIII., p. 42. *Brit. Jour. Derm.*, November, 1888. "Symmetrical Purple Congestion of the Skin," *Archives of Surgery*, vol. i. p. 372. He refers to a case of Boeck's of Christiania, of which he has seen the drawing only.

† *Brit. Jour. Derm.*, vol. xiii. (1901), p. 201, colored plate and histology.

or in clumps, and formed accordingly a dense fibrous or loose fibro-cellular structure. The sweat coils were very little, if at all, affected, and no hair follicles were found in the sections. In long-standing cases like Middleton's the fibrous tissue is more developed, and he found the coats of the arteries infiltrated with cells.

*Diagnosis.*—Comparison need only be made with Hutchinson's cases of purple congestion. The two types differ in the age and sex of the patients, in the position of the lesions, and in the older cases the nodular character was less developed, less firm, and were really edematous. They resemble each other in the gouty or arthritic tendencies of the patients, in the lesions being primarily nodular and becoming confluent into patches of a purplish tint.

*Treatment.*—This is unsatisfactory. One case got well after taking arsenic and applying liquor carbonis detergens, so there would be no objection to trying them again, but it is probable that the result was merely a coincidence.

### PELIOSIS RHEUMATICA.

*Deriv.*—Πελιός, livid.

*Synonym.*—Purpura Rheumatica.

*Definition.*—An acute disease, characterized by pain in some of the joints, accompanied by an eruption of red, raised patches or papules, which do not fade on pressure, or by purpuric spots.

This affection, which is rather a rare one, was first described by Schönlein. It presents nearly all the characteristics of exudative erythema, except that the hemorrhages are a constant instead of an exceptional feature, and the joint trouble rather more severe than usual. I have therefore thought it more scientifically consistent to describe it with the affections with which its affinities are evidently of the strongest, than to follow the majority of authors, who place it under Purpura.

*Symptoms.*—The patient complains of malaise, lassitude, and pains of moderate intensity in the limbs, especially the joints, which are often slightly swollen and tender. After lasting from a few days to a day or two, during the evening or night an eruption appears, and the pains then often abate. In many cases,

but not in all, the eruption is most abundant in the neighborhood of the joints in which the pain has been greatest, and upon the calves; the knees and ankles are always involved, the thighs, buttocks, elbows, and wrists frequently, the trunk rarely. Sometimes the order is different, the eruption preceding the pains. The skin lesions consist of slightly raised papules or patches, from an eighth to one inch in size, bright red at first, like an *E. papulatum* and *tuberculatum*, but unaltered by pressure, and soon becoming purplish; or they may be obviously hemorrhages from the first, and not at all elevated. Even *purpura hæmorrhagica*, with all its various phenomena, may supervene (Scheby-Buch); but this is very rare. A very severe case of this is recorded in full by J. Fayrer,\* with extensive sloughing of the tongue, mouth, and penis, but the patient recovered; while S. Mackenzie, in commenting upon this case, relates another fatal case. These, however, run a somewhat different course to the milder and more typical forms, such as the second case of Mackenzie's.

The temperature may be raised to 100° F. or 102° F., but no relation to a fresh attack, the joint affection, nor the eruption can be established, the temperature being often normal, when all these phenomena exist in as great severity as in those in which the temperature is raised. In two or three days, or less, the pain subsides, while the hemorrhages \* take the usual time for extravasations to undergo absorption. The attack may recur after an interval of from two days to two or three weeks. The same or fresh joints are again attacked, and the whole process is repeated, though sometimes with variations as to eruptions and pains, the disease dragging on in this way for a period of weeks or months. Purpura has been many times noted as a complication of acute rheumatism; but valvular

\* *Literature*.—Author's Atlas, Plate IV., Fig. 1. "Clinical Lecture on Peliosis Rheumatica." By McCall Anderson. *Brit. Med. Jour.*, vol. i. (1883), p. 1103. Fayrer, *Brit. Jour. Derm.*, vol. viii. (1896), p. 73 illustrated, and p. 116 for Mackenzie's article with a valuable analysis of forty-two cases of his own.

† I have seen case of a lady of forty-five in whom all the symptoms above described occurred with a temperature of 102° F., followed by an erythematous papular eruption which did disappear on pressure; attacks recurred every three weeks for some months. They developed after influenza.

murmurs \* have originated in the course of peliosis rheumatica, and left permanent organic changes both in the valves and muscular wall of the heart, where there was nothing in the shape of high temperature, the severity of the articular lesions or sweating, etc., to indicate that true rheumatic fever was present. Besnier and other French authors regard this as a proof that P. rheumatica sometimes has an etiological relation with valvular lesions. It may well be, however, that their relationship is only that of community of cause, and that is probably rheumatism.

There is a form of purpuric erythema closely allied to purpura rheumatica which may be indeed identical as regards the rash, but the general symptoms are not so much arthritic as gastrointestinal, the patient vomiting blood or passing it *per anum*. In a case under my colleague, Dr. Poore, which he asked me to see,—a man æt. about thirty-five,—the intestinal hemorrhage was so great and uncontrollable that the patient nearly died; the rash was in purpuric papules about the elbows, knees, wrists, etc. In a girl æt. thirteen, under me at Shadwell, the rash consisted of bright red papules all over the extensor aspect of the upper limbs, but somewhat dusky red in hue on the legs. They were flatly convex, not definitely circular; very abundant, but discrete on the arms above the elbow, but on the legs were in great part confluent. The whole of the rash, even where of the brightest red color, was unaffected by pressure. This was the fourth annual attack; the three preceding had been at or before Christmas, commencing with severe abdominal pains, vomiting and purging with blood in every motion and vomit, and the breath was very offensive. There was also hematuria, and more albumin than the blood would account for. The first and second attacks were the worst. The rash then was similar to the one I saw with Dr. Poore, but worse, the legs being swollen and painful; the ears had black blisters, and “the eyes turned black.” The symptoms generally lasted three or four weeks, but on this occasion she had frequent recurrences, at short intervals, for six months. She was admitted to the hospital, and with rest in bed, tonics, and good feeding, rapidly recovered.

\* *Wiener med. Wochensch.*, No. 32 (1883), p. 991; Schwarz on two cases of P. rheumatica with acute aortic insufficiency, in Kaposi's *Clinique*. Abs. in *Ann. de Derm. et de Syph.*, vol. v. (1884), p. 31. Also Oliver in *International Clinics*, vol. iv.—two fatal cases of endocarditis.

It is to be noted that in these cases, while the visceral hemorrhages are so profuse, those in the skin are quite moderate in extent, which constitutes an important distinction from purpura hæmorrhagica of the ordinary type.

A precisely similar eruption of varying grades of intensity, but characterized by the erythematous appearance and absence of alteration by pressure—in short, an **Erythema hæmorrhagicum**—is more frequent without any general symptoms, or with slight pains in some of the joints or edema of the legs. Of this character is the eruption called by Hutchinson,\* “purpura thrombotica.” In some of the lesions the hemorrhage is sufficient to destroy the vitality of a portion of skin, and a slough ensues. When its mode of formation has not been observed, and the slough separates, the ulcer, in association with a red papular eruption which leaves stains, is strongly suggestive of a syphilitic ulcer. The mode of development of both sore and rash, and the absence of other signs of syphilis, will, if the observer is aware of this form of disease, suffice to distinguish it. I have had a case, sent me by my friend Dr. Coutts, of purpuric erythema multiforme in a girl of twelve, in whom, after pains in the head, knees, wrists, and ankles, a circinate and papular bright red eruption appeared on the extensor aspect of the limbs, unaltered by pressure. Two of the lesions consisted of two concentric circles, and at the ankles there were irregular vesicles and bullæ containing purplish serum. The rash is always worst on the legs.

*Etiology.*—Women are more frequently attacked than men, say most authors, but Mackenzie’s personal cases were males twenty-four, females twenty. It is about equally common in the second, third, and fourth decennia, but is rare under ten and over sixty. Eighteen out of forty-two had had rheumatic fever; and rheumatic subjects generally, as well as those who have had previous attacks, are more predisposed to it. In three-fourths of Mackenzie’s cases the joints were swollen during the attack, and an even higher proportion were truly rheumatic. The season has an influence on some people; but of exciting causes little is known, except that chills appear to be the factor in many instances. Probably these only call into play “toxic influence.” In a patient who played in an orchestra, whenever

\*Syd. Soc. Atlas, Plate XXXIX., and my own, Plate IV., Fig. 2.

he was kept late, the next morning he had an outbreak on his legs. There was no other departure from health.

*Pathology.*—The most probable conjecture is that it is due to the influence of a toxin, not necessarily always rheumatic, on the vaso-motor system, central or peripheral or both. The lesions are primarily like those of *E. exudativum*; but why in these patients hemorrhages should be a constant instead of an accidental feature, as usually obtains in erythema eruptions, is inexplicable, unless we suppose that the toxic influence is stronger in hemorrhagic cases; but then it would be stronger still in the less common event of hemorrhage being the only lesion.

While it has so much in common with other forms of erythema multiforme as to justify its inclusion in that group, I agree with Mackenzie that its peculiarities make it recognizable as a special clinical type.

*Diagnosis.*—The diagnosis presents no difficulty if the occurrence of articular pains, with some swelling and a purpuric eruption, is sufficient; if, in short, joint pains and symmetrical purpura constitute *P. rheumatica*. It is, however, open to discussion whether all cases in which purpuric extravasation occurs in the course of acute rheumatism are to be placed in the same category, and also whether joint pains and cutaneous hemorrhages may not be due to other toxins as well as those developed in the rheumatic state. At present we are unable to distinguish between them, but it is desirable to recognize that the most typical cases of *peliosis rheumatica*, in addition to the joint pains and purpura, run a protracted course from a succession of attacks at short intervals. It is also not improbable that the cases with purpuric rash and visceral hemorrhages which I have described, and to which Osler also has called attention, are due to the same toxins acting on different lines.

*Prognosis.*—It is, in an uncomplicated case, quite certain that the patient will get well; it is equally uncertain when that will be, and it is highly probable that he will have another attack at some future time. In complicated cases the prognosis is that of rheumatic fever, endocarditis, or of other complications, such as the development into purpura hæmorrhagica, when the extent of the hemorrhage into the viscera governs the prognosis.

*Treatment.*—Rest in the horizontal position is important, get-

ting up too soon being alone sufficient, in many cases, to reproduce the pains and purpura. Even when there is no definite evidence of rheumatic fever, salicylates often give decided relief to the pains, though they do not seem to have any influence in preventing the recurrence in a few days. Quinine and iron, separately and in combination, appear to be beneficial in some cases. The effervescing potash mixture, with full doses of quinine, is often of great value. McCall Anderson\* treats it, like ordinary purpura, with turpentine or ergot. A liberal dietary is generally required, often with stimulants, and strict attention must be paid to hygiene and to the special indications of each case; but in many cases the disease runs its course uninfluenced by treatment.

### PELLAGRA.†

*Deriv.*—*Ital.* *Pelle*, skin; *Agra*, rough.

*Synonym.*—*Span.*, *Mal de la rosa*; or, *Mal roxo*.

*Definition.*—An endemic tropho-neurotic disease of toxic origin, produced by diseased maize, and affecting the cerebro-spinal, digestive, and cutaneous systems.

Pellagra was first observed in Spain in 1735, as recorded by Casal in 1762, and is now nearly confined to its northern part;

\*H. Mühlbauer cured three cases quickly by giving salipyrin 8 grams a day, and one took 10 grams without ill effect. In the musician I have referred to Fowler's solution kept the disease in check as long as he took it.

† *Literature.*—Hirsch's "Geographical and Historical Pathology," *Syd. Soc.*, vol. ii. p. 217, gives a very good account of the disease, to which I am much indebted. There is also a full bibliography, amongst which the writings of Lombroso and Roussel are most important. Paul Raymond's article, *Ann. de Derm. et de Syph.*, vol. x. (1889), p. 627, gives a good account of the skin symptoms, from which I have borrowed. Ludwig Berger—abridged trans. by Barendt, *Syd. Soc. Trans.*, "Selected Monographs on Dermatology," 1893. Lombroso, "Etiological, Clinical, and Prophylactic Researches." German edition by H. Kurella, 1898, p. 246. Full review in *Brit. Jour. Derm.*, vol. x., 1898, p. 419. Sandwith, "Pellagra in Egypt." Read at Brit. Med. Assoc. annual meeting in 1898. Reprint, John Bale, 1899. Babes U. Sion. *Die Pellagra*, 1901.

Tuczek of Marburg, "Klinische und anatomische Studien über die Pellagra." Fischer, Berlin, 1893. Good review, in *Annales*, vol. v., (1895), p. 187.

to Portugal; to northern and central Italy, especially Lombardy, Emilia, Venetia, and the south of Austria bordering on it; to Roumania and Corfu; and, until recently, to the southwest of France, but it has now died out there. All the affected districts are between  $42^{\circ}$  and  $48^{\circ}$  of northern latitude, in Europe, but Sandwith has shown that the disease is prevalent in Egypt as far as Assouan, so that the southern limit is  $24^{\circ}$ . Dr. Cuthbert Bowen of Barbadoes sent me photographs of erythema of parts exposed to the sun, and an account of symptoms which suggests that it is prevalent in that island; denudation of tongue and mucous membrane of intestine were present, but Thin says the disease was not "sprue." Sandwith states it occurs in India, though it is seldom recognized there, so that it is much more widely spread than was formerly supposed.

*Symptoms.*—The symptoms, which are referable to the nervous system, alimentary canal, and the skin, almost always begin in the spring, with weakness, lassitude, giddiness, headache, articular pain, severe burning sensation in the back radiating thence to the limbs, especially the hands and feet; the tongue is furred, the epigastrium tense and painful, and the bowels are loose, sometimes with slight jaundice. The skin is the last region affected, and is limited to the parts exposed to the sun, viz., the backs of the hands, forearms, and elbows, the face and neck in women and children whose faces are much exposed, and, when the person goes barefooted, the dorsum of the feet also, and occasionally the back and chest, being attacked in the above order.

The distribution, says Paul Raymond, is very definite, as a rule, only on the back of the hand, not extending beyond the first interphalangeal articulation till late in the disease, and above, not beyond the back of the wrist, the forearm being only occasionally affected. Sandwith's Egyptian experience differs from this, the forearms and elbows being frequently involved. On the foot it only involves the upper half of the dorsum from the level of the malleoli, and only the front of the neck down to the first piece of the sternum, seldom the nucha. The erythema often develops suddenly within twenty-four hours, and lasts from ten to eighteen days. It consists of diffuse, bright, dark, or livid red erythema, which disappears on pressure unless the congestion is so severe as to be hemorrhagic, for petechiæ are

common, and there may be bullæ in rare instances also, which either dry up or rupture, or leave indolent erosions; the skin is swollen, tense, and burns or itches, especially the latter in the sun. In about a fortnight the erythema subsides, becoming dark in the center and laminaceous, seldom furfuraceous, desquamation follows, leaving the skin beneath still thickened and more or less pigmented of a café au lait tint, or even sepia or dull brown; ephelides are also common. The thickening and pigmentation increase after each attack up to four or five years, when atrophy sets in. Then the skin dries, wrinkles, and withers like that of cachectic old age, and is so thin and lax that it can be pinched up as easily as it was difficult before. The nails and hair are unaffected. The skin manifestations thus present three stages: (1) congestion; (2) thickening and pigmentation; (3) atrophic thinning.

To return to the general course:

After lasting up to July or August the symptoms decline, and the patient seems quite well in the winter, but in the next spring all the symptoms reappear, either with the same or greater severity, though sometimes the aggravation does not show itself until the third attack or later, when the patient is too weak to stand, emaciates, suffers from severe pains in the head and back, with tenderness near the dorsal vertebræ. Insomnia is frequent; the third nerve is paralyzed more or less, and in four out of five cases there are changes in the fundus oculi also. Sandwith found the knee jerks increased in the early stage, sometimes very marked, and at the late stage diminished and sometimes absent. Ankle clonus was absent, other reflexes followed the condition of the knee jerks.

Meanwhile the rash may extend all over the body, with the changes already described, and the skin may lose more or less sensibility. The tongue gets denuded of papillæ, red and dry, there is a burning sensation in the mouth, deglutition is painful, painless enlargement of the parotid has been noted by Sandwith, diarrhea increases to profuseness, all the cerebro-spinal symptoms, many of them meningeal, are aggravated, and the patient is delirious, sinks into a typhoid state, and dies.

Mental depression, increasing to insanity, is very common, either in the form of mania, or that melancholia with fear of injury and a tendency to suicide by drowning, all pellagrous

patients liking to see and touch water; or the patient may sink into utter imbecility; in the young it often takes a special form, in which the body and organs of generation are defectively developed, while the mental powers are precocious and active.

Other less common symptoms are epileptiform convulsions, paresis of extensors, paralysis of the whole limbs and bladder, atrophy of the heart, alkaline urine of low specific gravity (1005), but no albumin, with dropsy and colliquative foul sweats, as well as the-diarrhea. When the symptoms are not very severe, the disease may last ten or fifteen or even twenty years, but the average duration is five years.

*Etiology.*—This may be summed up for Europe in the alliteration, Peasant life, Poverty, and Polenta, plus sun exposure as an exciting cause. Women suffer most and children least frequently, the commonest age being from thirty to fifty. In Egypt men are most affected, as they work most in the fields, and though maize is the staple food in Lower Egypt, they do not make it into polenta. In Upper Egypt, where millet is eaten, pellagra does not occur. It is a disease of the country, being only seen occasionally in towns, among the poorest and most exposed to the weather. The disease occurs almost exclusively (ninety per cent.) among the poorest peasants of the districts affected; but though it is predisposed to, and aggravated by poverty and bad hygiene generally, the immediate cause is the toxic influence analogous to ergotism, produced by eating decomposed or fermented maize, during which, as Lombroso's experiments show, a fatty oil (maize oil) and an extractive "pellagrozein" are produced, and the administration of these to men and animals excites pellagrous symptoms in them. The disease is not contagious, and is doubtfully hereditary, since both parents and children are subjected to the same influence. Sporadic cases are said to occur in France far away from the pellagrous districts, and it has been suggested that possibly other grains, such as oats, may undergo similar changes and produce similar effects. These are really, however, cases of what Roussel called pseudo-pellagra, which present to some extent analogous symptoms. They occur in chronic alcoholism with peripheral neuritis, and in asylums amongst the demented and general paralytics. Leudet believes that there is a pseudo-

pellagra connected with poverty, but if so the disease ought to be universal.

*Pathology.*—Lombroso infers, on good grounds, that it is due to a toxic effect on the cerebro-spinal nervous system, and Ferrati's \* observations go to prove that the toxins are derived from mold fungi, and not from bacteria.

The morbid anatomy shows four classes of changes:

1. Hyperemias and inflammatory processes, leading to exudation, etc., in the brain and cord membranes, liver, spleen, kidneys, and lower part of the intestines.

2. Atrophy and marasmus of the viscera supplied by the vagus, viz., the heart (brown atrophy), lungs, kidneys, spleen, and intestine, the muscular coat of the latter being much thinned. In the Barbadoes cases the mucous membrane was denuded.

3. Fatty degeneration of the kidneys, liver, myocardium, and of the vessels and cells of the spinal cord.

4. Pigmentary degeneration of the cells of the brain, cord, liver, kidneys, and heart. The skin also is atrophied and pigmented and often sclerosed, signs of senility in short. Vollmer lays stress on the horny metamorphosis of the rete.

5. Special Cord Changes.—Primary lateral sclerosis in the dorsal region only; marked degeneration of the column of Goll in the median portion, except a small group of fibers immediately behind the gray commissure. Tuzcek also found these changes, but says the posterior roots escape, while Lombroso found Burdach's column and the posterior roots sometimes involved. Unlike locomotor ataxy the lesion is seldom below the dorsal region, and Lissauer's tract and Clark's column are unaffected. Pellagra lesions therefore resemble those of general paralysis. In Egypt the post-mortem changes are complicated by the frequent presence of ankylostoma, bilbaria, and other parasites, and dysentery is not uncommon towards the end.

Déjerine † found parenchymatous neuritis of the cutaneous nerves, but this was a case of pseudo-pellagra in a chronic alcoholic. P. Raymond could find none in a true pellagrous patient with atrophic skin.

\* Abs. in *Lancet*, October 13, 1900, p. 1085.

† *Ann. de Derm. et de Syph.*, vol. ii. (1881), p. 719.

**Diagnosis.**—This would turn on the position of the patient, exposing him to the influence of diseased maize or other cereal, the triad group of symptoms, depression, diarrhea, and dermatitis, the denuded tongue, tenderness of spinal nerves, the erythema being on exposed parts, and the general course of the disease. In pseudo-pellagra the erythema is present, but the other special symptoms and etiological conditions are absent. In alcoholic cases there would also be the symptoms of alcoholism, including peripheral neuritis as a rule, but in a case of Dubreuilh's it was absent.

**Prognosis.**—This is only favorable if the attacks are of slight intensity, or if there has been not more than one previous attack, and the patient can be placed under favorable conditions. In other cases the outlook is very bad, and the nervous system, even at the best, is apt to be permanently damaged.

**Treatment.**—Lombroso recommends for prophylaxis the better storing and gathering of the maize, so as to keep it dry \* and avoid fermentative changes. Subsequently, when the disease has developed, removal into good surroundings, good feeding, and treating the patient according to circumstances; opium is recommended when there is fear or stupor; quinine in prostration; calomel, arnica, and cold douches for diarrhea; but of all remedies, arsenic is the most effectual; 1-2 to 2 minims of liquor arsenicalis should be given daily; in infants, friction with chlorid of sodium is beneficial.

**Acrodynia or Epidemic Erythema†** is a disease closely allied to pellagra and ergotism, which occurred first in Paris and some other French towns as an extensive epidemic in 1828 to 1830 and 1831, and has since been observed on a small scale chiefly among Belgian and French soldiers and prisoners; the last occasions being among the Mexican and Algerian soldiers in Mexico in 1866, and in one French regiment near Versailles in 1874.

**Symptoms.**—The symptoms are those of gastro-intestinal irritation, redness of the conjunctiva, edema of the face, soon followed by formication, pricking pains in the palms and soles, and

\* In Italy a kind of drying oven is supplied to the peasants by charity, and has been found to be a great aid in preventing the disease.

† Hirsch, *loc. cit.*, vol. ii. p. 248, contains the best account, of which the above is an abstract. Also Alibert, "Monographie des Dermatoses," 2d ed., 1833, p. 12.

a burning sensation, with, at first, hyperesthesia of those parts, especially the feet, and later on, anesthesia; then an erythematous eruption breaks out, preceded by bullæ, according to Alibert, chiefly on the hands and feet, but it may spread over the limbs and parts of the trunk, followed by exfoliation and dark-brown or black pigmentation, greatest in the warm regions of the body. In severe cases the limbs waste, become edematous, and there may be cramps, pareses, and toxic spasms. There is no fever, and it is seldom fatal except in the old and feeble, or occasionally from diarrhea; otherwise there is more or less complete recovery in a few weeks or months. There are no special post-mortem changes, and the pathology is obscure, but probably it is due to some defect in food, such as altered cereals, though this hypothesis lacks proof.

### URTICARIA.

*Deriv.*—*Urtica*, a nettle.

*Synonyms.*—Nettle-rash; Cnidosi; *Fr.*, Urticaire; *Ger.*, Nesselsucht; Nesselausschlag.

*Definition.*—An eruption consisting of rapidly formed evanescent wheals, accompanied by burning and tingling.

Urticaria is a common disease, probably much more so than statistics would suggest (44 per 1000). There are four principal varieties—*U. acuta*, *U. chronica*, *U. papulosa*, and *U. pigmentosa*; the last differs so much from the others that it is considered separately. There are several subvarieties, the most important of which are *U. tuberosa*, *U. bullosa*, *U. hæmorrhagica*, *U. factitia*, and circumscribed edema.

*Symptoms.*—In an ordinary case the eruption comes out suddenly, either without any warning or preceded by burning and tingling of the skin, and sometimes by febrile symptoms.

The lesions consist of firm, circumscribed, flatly convex elevations of the skin, from a quarter to one inch in diameter, the general run being about the size of the finger-nail; they are at first red, and, as they develop, become white in the center, and only the border is red, or they may stop short at the red stage. In short, as their name indicates, they are exactly like the

lesions produced by the nettle, *urtica urens*, and are called pomphi or wheals.

Their formation and presence are attended with burning, tingling, and itching, sometimes slight, but usually so severe as to oblige the victim to scratch vigorously, the temporary relief thus obtained being purchased at the price of a greater liability to the formation of fresh wheals, which develop in a few minutes, last from an hour to a day, or even several days, and then disappear, without desquamation or other sign of their presence.

The eruption is never symmetrical, the wheals have no definite arrangement, vary from one or two to sufficient to cover more or less completely the whole body, including the mucous membranes of the mouth, tongue, pharynx, and inferably other mucosæ, such as those of the air passages and stomach, dyspnea of spasmodic asthma type and vomiting having sometimes been associated with the skin eruption. Leube noticed it along with temporary albuminuria, and Gruss\* relates a case in which acute orbital retrobulbar edema produced proptosis, and was associated with alarming cerebral symptoms.

*Variations.*—Most of the subvarieties depend on the size, contents, and duration of the wheals, and a few on other considerations. The wheals may be very small, about one-eighth of an inch (*U. papulosa*), or they may be unusually large, as big as a walnut, hen's egg, or even larger (*U. tuberosa*, *U. gigans*,† Milton); these lesions are firmer and more persistent than usual, are few in number, and occur mainly in broken-down constitutions beyond the middle age. When the tissues of the affected area are lax, there is often much edematous swelling (*U. œdematosa*); this is well seen on the face, where the eyes may be quite closed; the wheals here, too, generally remain pink throughout; the tongue may be so swollen as to threaten suffocation, but the swelling goes down in a few hours, and incisions are rarely necessary. A variety of this is the so-

\* In a discussion on Riehl's paper on "Circumscribed Edema" at Imp. Soc. Phys. of Vienna, reported in *N. Y. Med. Jour.*, 1887, p. 268.

† Milton published a monograph on "Giant Urticaria" in 1878, in which he gives three cases. Juler relates one in *Cincinnati Lancet and Observer*, 1878; and Wilson one, 6th ed., p. 266. I have met with several cases. In one, a man æt. forty-four, a broken-down publican, the wheals were sometimes as large as a goose's egg. He was also subject to diffuse swelling occupying nearly the whole anterior surface of the thighs.

called **Quincke's disease**, or, **acute circumscribed or wandering edema**, in which the orbital tissue or that of other parts of the face may swell up into a large tumor, or there may be a large ill-defined swelling of a great portion of the limb or other part of the body from subcutaneous edema. In these giant and diffuse forms, which seldom attack the trunk, itching is usually absent, but there may be burning and tension of the affected skin. Occasionally the subjective symptoms are present, but the wheals do not appear; this is the **U. subcutanea** of Willan; it is generally limited to the loins and thighs.

Hemorrhage may occur into the wheals (**U. hæmorrhagica**, or **purpura urticans**), and when the mucous membranes are affected may give rise to copious hemorrhage. Thus, Pringle \* records a case of a gentleman of fifty, who had repeated attacks of alarmingly severe hæmatemesis, associated with outbreaks of urticaria of the body and visible mucous membranes; after two smart attacks of gout, the hemorrhage and urticaria, which was never hæmorrhagic on the skin, diminished in severity, and became more amenable to treatment with subcutaneous injections of morphia and ergotin. In a boy of nine, under Murchison with **U. tuberosa et hæmorrhagica**, there was hemorrhage from the bowels, kidneys, and urinary passages, and much uric acid in the urine. (See also **Erythema hæmorrhagicum**.) Mackenzie met with a case of a boy of two who had a broad band of it round the abdomen after eating fried fish.

When the serum which produces the wheal is more abundant than usual it may force its way up through the rete, and elevate the upper layers to a vesicle or bulla (**U. bullosa**). It is most frequent in children, and in one of my cases the contents became turbid, the bulla burst and left scars; but it is a much rarer event than might be supposed. I have seen it simulate chicken-pox. Probably many of the recorded cases in adults were dermatitis herpetiformis, with which urticaria has close affinities; probably also crescentic urticaria is a form of hydroa. In one of my

\* *Clin. Soc. Trans.*, vol. xviii. p. 143. In the *Lancet*, June 14, 1890, Wills relates two cases, one fatal. It was probably really a case of peliosis rheumatica. Chittenden's case was very like Pringle's. *Brit. Jour. Derm.*, vol. x., 1898, p. 158. C. S. Hawkes relates an extraordinary case in a child of twenty-one months in which its life was endangered. Abs. in *Lancet*, June 16, 1900, p. 1740.

cases, a man æt. twenty-eight, it began in rings the size of a shilling, which enlarged considerably on the palms, soles, and back of the hands. On the limbs and trunk were ordinary wheals, which also enlarged, and there was *U. factitia*.

**U. Papulosa.** This is the form in which urticaria generally presents itself in children, and is the "*lichen urticatus*" of Bateman. It is due, doubtless, to the tissues of the child being more ready to resent irritation than those of adults. And, instead of there being merely serous, there is actual inflammatory effusion into the papillæ, so that a papule is left after the wheal has disappeared. As usually seen by the practitioner, it is evidently an extremely pruritic eruption, suggestive of scabies, consisting of inflammatory pale red papules the size of a hemp seed, with scabbed tops. It is generally most abundant in an infant, about the loins and buttocks, but may be in any part which the child can reach to scratch. When present on the hands, the resemblance to scabies is very close. Irregular flat scabbed pustular lesions (*ecthyma*) are often interspersed among the papules, and it is for this, frequently, that the child is brought; the wheals are often not present when seen by the doctor, and the mother generally says nothing about them unless they are inquired for. If they should happen to be present, they are often pink instead of white, and may be either of the ordinary size or very small, and sometimes are linear in the direction of the scratching. It is an extremely obstinate eruption, always worse in the summer. Hutchinson considers this disease to be entirely due to flea and bug bites and the like, in the first instance. I am convinced this is far too narrow a view, and that, though true of many cases, among the poor especially, irritation of the alimentary canal plays quite as, or even more, important a rôle in children than in adults, to say nothing of the other recognized causes of urticaria.

Colcott Fox,\* in an elaborate clinical essay on this subject, says truly enough that vesicles or pustules may be present in addition to the papules; but he is, I think, certainly mistaken in supposing that the papular, papulo-vesicular or pustular, or even bullous eruptions, which I have described in connection

\* "*Urticaria in Infancy and Childhood*," *Brit. Jour. Derm.*, May and June, 1890.





URTICARIA FACTITIA.

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with vaccination (see Vaccination Rashes) are only forms of lichen urticatus, though, of course, I admit that urticaria is sometimes a sequel both of varicella and vaccination.

It is a moot point as to whether some cases of *U. papulosa* do not develop into prurigo (see that disease).

**U. Factitia** exists where, owing to the excessive irritability of the cutaneous nerves, wheals can be excited by local irritation. This is the "dermographism" and "autographism" of fanciful writers. Letters can be inscribed with the finger nails or a pointed \* instrument, and in a minute or two the white letters with pink borders stand out in bold relief on the skin; this condition can be produced even when the patient is under chloroform (Caspary). The artificial wheals last from a few minutes to several hours, in rare cases eight to forty-eight (Barthélemy), but as a precursor of scleroderma diffusa much longer duration has been reached. Bettmann † records that in a man æt. thirty-nine it took several minutes to appear, and then remained unaltered for five or six days. The liability to it is also often very persistent, and may be associated with other forms. In fact, in most cases, at least a minor degree of it is present, and may sometimes be of diagnostic assistance. In the slightest form there is only redness without white elevation, in the line of the scratch like a *tache cérébrale*. On the other hand Barthélemy ‡ records a unique case in which white elevations without red borders were produced by scratching. It developed on what he called a "nevrotoxidermite" of erythematous character accompanied by intense irritation. In a case of Fabry's, § a woman of sixty-three, hemorrhage instantly ensued into the wheals, and remained for weeks after the subsidence of the wheal. The

\* Féréol met with a man who procured his admission to different hospitals by imitating the measles, scarlatina, or variola eruption by varying the instrument of irritation.

† Bettmann, *Berl. klin. Woch.*, April 8, 1901. Abs. in *Brit. Med. Jour. Suppl.*, April 27, 1901, p. 65.

‡ P. 123 of "Dermographisme," Paris, 1893, an illustrated monograph of 287 pages, copious literature, numerous cases, and an interesting history of the disease in the Middle Ages, when pseudo-miracles were worked on the patients by the priests.

§ *Archiv. f. Derm. u. Syph.*, vol. liv. (1900), p. 111. Abs. *Amer. Jour. Cut. Dis.*, vol. xix. (1901), p. 112.

tongue was permanently swollen and protruded. Mouatt-Biggs \* showed to the Clinical Society a very extreme case of the ordinary form, which appeared to have existed since birth. The patient was a noted athlete, æt. twenty-two, and showed no sign of nervous or arthritic diathesis, which Barthélemy thinks is the fundamental origin of the affection. In this case the hair follicles were so prominent and dilated that a fine wire could be introduced into them. The local temperature was raised, but there was no itching or ordinary urticaria. The lines traced reached their highest development in five minutes, remained at their height ten minutes, and disappeared in thirty to forty minutes. In a case of Thomsen's disease a pin prick produced a large wheal round the seat of puncture. The condition is not infrequent in locomotor ataxy, and in syringo-myelia.

Confluent urticaria is *U. conferta*, and such terms as "ephemera" and "evanida" refer to the short duration of the wheals, and "perstans" when they last longer, with more hyperemia than usual; it has, however, been used by some authors for *U. chronica*. Except *U. perstans* these terms are superfluous and have fallen into disuse. In rare instances urticaria is distributed unilaterally. Thus in Róna's case, a girl of eighteen with acute rheumatism and endocarditis had left-sided urticaria and chorea, and in Mackenzie's case the distribution was over the left arm from the scapula to the wrist and confined to definite nerve tracts. Urticarial wheals present no definite grouping as a rule, but in one of my cases, a boy æt. eleven, who had marked febrile symptoms from toxin absorption from scybala, broke out all over with corymbose groups of pea-sized wheals, followed the next day by a morbilliform rash. Urticaria may also be confined to a small area. In a man æt. thirty-four I saw it limited to the palms, and it is often limited to the limbs, and in rare cases to a mucous membrane, *e. g.*, tongue, larynx, etc.†

**U. Acuta** is often, though not always, an *U. febrilis*; when it is, the temperature may be raised 3° to 5° F. The pulse is quick, and there are marked signs of gastric irritation, nausea, vomiting, weight and pain at the epigastrium, furred tongue, pain in the head, and prostration. The eruption may not appear for a

\* *Clin. Soc. Trans.*, vol. xxxii. (1899), p. 259.

† Private note book G. 818.

day or two, and then comes out copiously all over; the gastric symptoms are temporarily relieved, the skin and gastric symptoms alternating for some days; such cases are generally traceable to a definite cause, and when they are due to irritating ingesta, whether of food, medicines, etc., the eruption may follow the ingestion of the peccant material very rapidly, even while it is being eaten. When this is got rid of the urticaria rapidly disappears, but the gastric mucosa may be left in a very irritable condition, and many cases are probably due to auto-toxins.

**U. Chronica** refers to the duration of the disease as a whole; the wheals come out acutely, and only remain a short time, but others form at either long or short intervals, and in some instances the interval is a regular one. Willan and Wilson both refer to cases of this type where there were outbreaks once every week; it is also seen in ague occasionally, but not following the intermittent course of the fever. The eruption is rarely so extensive as in the acute forms, and there is less likelihood of there being general disturbance. The disease may last for an indefinite time, and though always relievable, is generally curable only with difficulty and perseverance.

**Urticaria perstans.\***—While the transitory character of the lesions is the most striking and characteristic feature of the vast majority of cases, there are not a few in which either ordinary wheals remain longer than usual, or, while wheal-like in some respects, they differ in others and stay for days, weeks, or months, or there may be ordinary wheals which either develop into, or are followed by, lesions so different in character that their urticarial nature will be unperceived, unless their development has been observed, or that ordinary wheals develop from time to time as well as the persistent lesions, or unless urticaria can be factitiously produced by a scratch, to which the chronic lesion also responds by becoming hyperemic and more prominent. The most familiar secondary lesion is the persistent papule left by the wheals in children as already described under *U. Papulosa*. Hemorrhage into a wheal and simple pigmenta-

\*The author drew attention to these cases in a paper, "Urticaria with Persistent Lesions," in the International Congress at Rome in 1894, p. 34 of *Trans.*, relating several interesting personal and other cases.

tion following ordinary urticaria are also examples of secondary lesions, but more striking and important are the nodular lesions of infantile urticaria pigmentosa, to be described separately. There remain some rare cases, difficult to classify, which require brief mention.

A Turkish bath attendant, æt. fifty-four, came to U. C. H. with about a dozen lesions on each side of the chest and nowhere else. When they first came out they itched, were white in the center, and round and prominent like a wheal, and then in a few days they settled down into flat infiltrations from a split pea to over an inch in diameter, firm to the touch, not sharply defined, and of a slightly livid red color and no itching. They remained thus for weeks or months, and then disappeared in four days from the beginning of involution. They had been present as a whole for a year and a half. In another case a woman, æt. thirty-two, had similar lesions, except that some were hemorrhagic, and persisted for weeks on the legs and arms.

In a case of Morratt Baker's,\* which he called **U. perstans tuberosa**, the patient, who had suffered from the disease for two years, had factitious urticaria, and in addition, persistent mottled yellow and red tubercles, affecting the whole of the ears, the knuckles, and elbows; they were said to have begun just like the wheals, and some had disappeared while others had come out. They were very tender, and one over a knuckle had ulcerated.

A lady, æt. thirty-five, was brought to me by Raymond Johnson, with firm, solid tumors, some as large as a large gooseberry, which slowly formed (one six weeks) and then equally slowly disappeared. They were so like tumors that the question of excision had arisen. Urticaria factitia was present.

At the Dermatological Society, October 14, 1891, Morratt Baker † showed a young woman, æt. twenty-four, who for the last year had a disease consisting of pea- to bean-sized, convex, pale purplish-red, firm nodules, rough to the touch like flat warts. (**U. perstans verrucosa**). They had come out in small numbers at a time; but as each one persisted, when presented to the Society, they were pretty numerous on the limbs, more on the extensor than the flexor surface. She believed none ever

\* *Med. Chir. Trans.*, vol. lxiv. (1881), with colored plate.

† A wax model of this case is in the College of Surgeons' Museum, No. 16 of Dermatological Series.

went away. They itched severely both during and after development. An early one, on the back of the hand, was of a brighter red and rather more acutely conical, and in the center was a horny dot formed round a follicle. Whilst under examination she scratched her forearm, and a distinct small wheal appeared. The general health was good. A verrucose case of this type was published by Kreibich \* and others by J. V. Hielemann, and Johnston.

In Penrose's case,† a child of two, the eruption followed measles, and some of the lesions lasted for months, one ten months, and was the size of half a crown, but most were from a hempseed to a shilling. They were red, smooth, firm, and deep-seated in rings and patches of hard nodules, and they did not itch much, and all but the oldest disappeared in nine months. These are only specimens of cases of which other varieties are scattered through dermatological literature.

In rare instances the wheal may be limited to an appendage of the skin. Thus, under the name of urticarial acne, Löwenbach ‡ relates a case where the pilo-sebaceous apparatus was primarily involved. Intense itching preceded the appearance of firm pale red wheals from one-eighth to one-sixth of an inch across, which enlarged peripherally to one-fourth or one-half an inch and later underwent central disintegration and left a white cicatrix like that of acne varioliformis. The whole process lasted from four to six days. The affection developed after an attack of scabies cured by Peruvian balsam.

*Etiology.*—No difference in age or sex brings immunity from urticaria, but it is more common in the female sex and in infants and children, in the latter mainly in the papular form, but *U. bullosa* is also more common in children; it is also more common in the summer months.

Foremost amongst the causes of urticaria in all forms is irritation of the alimentary canal, but the causes are so numerous that they must be classified into, first, direct or local irritation of the skin, and, second, indirect or reflex irritation.

\* *Arch. f. Derm. u. Syph.*, vol. xlviii. (1899), p. 165, colored illustrations and micro. section. Hielemann's case is quoted by *American Medical Bulletin* for May, 1900. Johnston's in *Trans. Amer. Derm. Assoc.*, 1898.

† *Brit. Jour. Derm.*, vol. v. (1893), p. 210.

‡ *Archiv. f. Derm. u. Syph.*, xlix. (1899), p. 29. Full abs. in *Annales*, vol. x. (1899), p. 1108.

Under *direct or local irritants* come the common stinging-nettle, contact with medusæ or jelly-fish, insect bites, *e. g.*, of fleas, bugs, mosquitoes, bee or wasp stings, some kinds of caterpillar crawling over the skin, violent scratching from any cause, *e. g.*, scabies or prurigo, and, occasionally, galvanic currents to the skin, poultices, etc.; sudden alternations of temperature, leading to chills, are also apt to produce it, much more frequently, I am convinced, than is usually supposed. De Argæz reports a case of a rheumatic woman who sat in a draught while perspiring, and an urticaria of the whole body ensued. In my own person a cold bath following immediately on a hot one produced general urticaria before I was dry. Direct exposure to intense sun-heat has also produced it, but this is rare.

*Indirect Irritation* acts chiefly through the alimentary canal, which may be either healthy or unhealthy at the time.

(a) Food, even articles not usually considered injurious, may excite it, but the more frequent are shell-fish, especially mussels\* and crabs; some kinds of meat, especially pork and sausages; fruit, such as nuts, almonds, and strawberries; fungi, *e. g.*, mushrooms; branny food, such as porridge or oatmeal in other forms, etc.

(b) Medicines of many kinds, especially copaiba, cubebs, quinine, mercury even by inunction or subcutaneous injection, morphia, turpentine, salicylic acid, valerian, chloral, etc.; some consider that the occurrence of urticaria in ague is really due to the quinine given for the ague. Certain odors may excite it.

(c) Worms are a common cause in children, but the main cause in them is chronic intestinal catarrh, commencing often in early infancy, and from want of efficient treatment persisting for years. The absorption of hydatid fluid, whether from spontaneous rupture, puncture by trocar, or electrolysis, has repeatedly produced urticaria; that it is not a reflex phenomenon, as Graham thought, was proved by Debove, who produced it by the subcutaneous injection of some hydatid fluid. Urticaria has also followed tapping an ordinary pleuritic effusion. A violent outbreak of urticaria has in a few cases preceded the

\* Schmidtman found a ptomain he called "mytilotoxin" exclusively in mussels taken from impure stagnant water, and there is reason to believe that it is the product of a bacillus, cultivations of which proved fatal to animals.

exit of a guinea worm (Duke, Winze, Sutherland, etc.). Probably both are examples of toxin absorption. Auto-toxins are probably frequent causes, but seldom demonstrable. Diphtheria and plague antitoxins, also, have produced urticaria.

Langubuch, confirmed by Brieger, says that a living hydatid cyst contains a poison or ptomain, the quantity being in proportion to the activity of development of the cyst and daughter cysts. Succinate of soda is also found in hydatid fluid, and is another suggested cause of the eruption.

In most of the other above instances there is a predisposing idiosyncrasy on the part of the patient, and most of them come under *U. ab ingestis*, as it is sometimes called, and refer to acute attacks. An extreme instance of predisposition is related by Buret. A man had urticaria of feet or hands whenever he washed them in cold water, while a flea drove him mad with wheals the size of a five-franc piece. In chronic urticaria, though many of the above agents will excite an attack, there is often defective digestion habitually present. The gouty diathesis is a predisposing cause, probably by its association with acid dyspepsia; indeed, dyspepsia, however induced, is one of the commonest factors. Others are:

*Disorders in other organs, e. g.*, the uterus and ovaries, both functional and organic. Some women have urticaria just before each period, others have it at each pregnancy, others again during lactation. Leeches to the os, passing a sound, etc., are examples of direct irritation to the uterus causing urticaria.

It is associated with many spasmodic conditions, *e. g.*, asthma and gallstone colic; it is also seen in diseases of the nervous system, such as neuralgia, locomotor ataxy, and emotional conditions; thus I know of a lady in whom the advent of strangers produced urticaria, and this sensitiveness increased, until a knock or ring at the front door would determine an immediate outbreak; Alibert gives several analogous instances. Where bile is free in the circulation, as in jaundice, it is frequent; and in conditions short of actual jaundice, such as lithemia; it is not unusual in albuminuria and glycosuria also; and it has been found in association with rheumatism, purpura, and intermittent fever; in the latter case, it is often controllable by quinine. It is often difficult, especially in *U. chronica*, to ascertain the original cause, as it may date far back, and have rendered the

vaso-motor system so irritable that the most apparently trivial conditions will lead to it; and the mental attitude of the patient towards those conditions which he knows will produce it is not unimportant.

*Pathology.*—Everything in urticaria points to its being primarily a vaso-motor disturbance, direct or reflex, central or peripheral. The course of events is probably this: a spasmodic contraction is followed by a paralytic dilatation of the vessels, and stasis or retardation of the circulation in the papillary layer. Serous exudation then ensues, producing acute edema, which lifts up the epidermis into a wheal; this is pink at first, but as the fluid increases the blood is pressed out at the center, which becomes white, while the periphery is all the more hyperemic.

The arrectores pili are often excited to strong contraction, as in the instance of extreme U. factitia already related, and occasionally the wheal is limited to the hair follicle.

It is supposed by many that the muscles of the skin, by their contraction, limit the edema and increase the prominence of the wheal.

Philipppson \* disputes the vaso-motor view, and believes with Heidenhain that a secretory action of the vascular endothelium is involved, and that the process is a mild inflammation from a feeble toxin action.

*Anatomy.*—Vidal † excised a wheal during life, and found the "superficial and deep network of vessels dilated and gorged with blood without any alteration of their walls. Both the blood-vessels and lymphatics were surrounded by leukocytes, which were also scattered through the whole thickness of the cutis and massed together at certain points. A few were to be seen between the cells in the deepest layer of the epidermis. Here this structure was normal, but another piece of skin was excised from a wheal in which the epidermis had been raised into a vesicle. This vesicle contained a sero-albuminous fluid and the *débris* of epithelial cells. In the middle layers the cells were vesicular, and those of the deeper layer granular. Leukocytes migrating among the cells in the deep layer of the epidermis were more numerous than in the other case." Neumann found a local edema and ischemia in a wheal produced on a rabbit with a stinging-nettle. Unna also has examined

\* "Experimental Researches on Urticaria." Philipppson, *Giorn. Ital. d. Mal. Ven. e d. Pelle*, 1899, p. 675. Abs. *Brit. Jour. Derm.*, vol. xii. (1900), p. 217.

† *L'Union Médicale*, February 24, 1880; quoted in *Lancet*, vol. i. (1880), p. 537.

a wheal, and found edema of the lower layers of the cutis, forming fissures and loculi in the lymph vessels and spaces; he thinks the wheal is produced by a spasm of the large veins of the skin, which normally serve to carry off the lymph.

Leredde \* examined the blood in two acute urticarias and one chronic one with acute attacks. He found polynucleosis, during the attack, only with leukocytosis. As the urticaria subsided, so did the polynucleosis, and in one case was followed by eosinophilia. Lazarus also found sixty per cent. of eosinophiles, and Leredde suggests that this examination was made as the attack was passing off. These observations, while requiring further research, suggest, Leredde thinks, that urticaria may be connected with an undue sensitiveness of the hemapoietic, rather than of the nervous system.

Wright † finds that there is deficient blood coagulability in those liable to urticaria, and that this conduces to "serous hemorrhage," and gave twenty-grain doses of chlorid of calcium three times a day as a corrective successfully in two cases.

Gilchrist ‡ found an excess of indican in some cases of urticaria, but he did not state whether constipation was present in those cases—a condition in which it is usually increased.

*Diagnosis.*—The sudden evolution and transitory duration of white or pink, itching or tingling elevations, or wheals, are quite characteristic, and even when there is no eruption when the patient is seen, an eruption which comes and goes at short intervals can scarcely be anything but urticaria.

The eruptions most like urticaria are those of *erythema papulatum* or *tuberculatum*, which may resemble pink wheals; but the erythema is symmetrical, and seldom itches severely, and the lesions often enlarge peripherally, and in these points it differs from urticaria.

Similar considerations would distinguish *erythema nodosum* from *U. tuberosa*; moreover, the tumors of *E. nodosum* are very tender.

*U. papulosa* is very like *scabies* in its general aspect, but there are none of the characteristic burrows, and the eruption is not between the fingers, and often not on the other favorite seats

\* *Annales de Derm.*, etc., vol. x. (1899), p. 403.

† *Brit. Jour. Derm.*, vol. viii. (1896), p. 82.

‡ *Trans. Amer. Derm. Assoc.*, 1899.

of scabies. It must, however, be borne in mind that the two may be associated, and that scabies may lead to urticaria; a history of urticaria is not enough, therefore, as it may be only secondary. Quite as often the urticarial element is overlooked, and it is only on inquiry that it is found that "the child comes out in bumps," or "water blisters," as if it had been stung by a nettle.

The erythema stage of *dermatitis herpetiformis* might easily be mistaken for it; the crescentic arrangement of the lesions, which are always pink, their independence of ingesta, and the fact that vesicles or bullæ develop sooner or later as the rule, while in urticaria they are exceptional, would guide to a correct decision.

*Prognosis.*—Acute urticaria usually gets well in a few days or less, but some cases, if untreated, go on into the chronic form.

The chronic form depends largely on the possibility of removing or avoiding the cause or causes.

The papular urticaria of children is often a very obstinate affection, even when it seems to be well in winter, breaking out again when the warm weather sets in. I believe, however, that all cases are curable, if the parents will be sufficiently watchful against exciting causes, and will persevere long enough with remedial, and above all with preventive, measures.

*Treatment.*—An acute attack, due to irritating ingesta, is best treated by an emetic if seen sufficiently early, and at a later period, saline aperients, such as sulphate and carbonate of magnesia (Mixtures, F. 1, 2, or 3).

These measures are often sufficient, but where any gastric irritation remains care must be taken lest it lapses into the chronic form; bland and unirritating articles of diet, an effervescent soda mixture, or mixture of bismuth (Mixtures, F. 10), would be the line to follow.

For the successful treatment of chronic urticaria, the study of the etiology is the most important preliminary. This comprises not only the original cause, which may or may not be operative when the patient comes under observation, but also exciting causes of fresh outbreaks. Most careful inquiry into the habits of the patient, and the conditions under which the eruption comes out, should be made, the urine examined, and investigation of every organ and its functions may be required. In the vast majority of cases, however, it is with the alimentary canal

that we have most to do. The diet should be carefully regulated; fermentable articles, such as pastry, highly seasoned or sugared foods, beer, etc., avoided; alcohol should be very sparingly taken, if at all; pure, well-diluted spirits are the least injurious, and perhaps claret may be permitted; the patient should be instructed to notice if any special article of diet or other circumstance leads to the outbreak. The bowels must be carefully regulated; an aloes, belladonna, and nux vomica pill every night is often most useful (Pills, F. 1 or 2), with occasional salines, such as Carlsbad Sprudel salt, or seidlitz powders; or alkalies with bitters, such as carbonate of soda and calumba; or bismuth nitrate and nux vomica (Mixtures, F. 8 to 10). Intestinal antiseptics often afford most valuable assistance. I cured a case of fifteen years' duration by persevering treatment in this direction.

The gouty diathesis is a frequent offender; alkalies, with the other measures for that condition, may be needed. Diuretics are often required, and act most beneficially in some cases (Mixtures, F. 7). And yet, with every care, and when all the functions are duly performed, there are cases in which the eruption will continually recur. It is then that we must seek the help of those narcotics which act on the vaso-motor centers, such as the tincture of belladonna, in full and increasing doses; or, better, sulphate of atropia, 1-150 grain cautiously increased, or pilocarpin 1-8 of a grain may be daily injected subcutaneously. Antipyrin or antifebrin in ten-grain doses will often cut short an actual outbreak, and is sometimes curative. It is often a good plan to give one or two tabloids a couple of hours before an anticipated attack, outbreaks in some patients recurring with something like punctuality. Phenacetin and trional are alternative drugs. Chlorid of calcium was recommended by Wright,\* as already mentioned under Pathology, at first thirty grains twice or thrice a day, then twenty, and then ten. I tried it in a few cases, but without success, and in one or two the eruption came out more abundantly. In obstinate cases further trial might be made, but most cases yield to treatment on the general lines laid down.

In infantile urticaria from chronic intestinal catarrh diet is of the highest importance; sweets of any sort should be absolutely

\* *Lancet*, January 18, 1896, p. 153.

interdicted, and starch cut down as much as possible; therefore no potatoes, toast instead of bread, and milk puddings of rice, etc., or sop, should only be permitted when mixed with maltine. All fruits, especially strawberries, should be avoided, except perhaps baked apples. A fair amount of meat may be allowed to a child two years old or more.

For drugs, bicarbonate of soda and bismuth, with carminatives, salicylate of soda or salol, and sometimes gray powder and pepsin, are the kind of drugs most frequently indicated.

In some of these apparently causeless cases a steady course of arsenic in small doses, long continued, has been most successful in my hands; but it must be given with discrimination, and never when the urticaria is connected with the disorder of the alimentary canal, as it will then only add fuel to the fire. Bromid of potassium has been strongly recommended by McCall Anderson. Quinine in full doses is also successful, both in malarial urticaria and some other cases, but it must be remembered that quinine causes urticaria in a few persons.

Galvanism down the spine cured a case in which it came out in the erect, and disappeared in the recumbent posture. Strophanthus, ichthyol, salicylate of soda, and iodid of potassium also have friends, but it is wiser to depend more on rational carefully planned treatment than on specifics. I believe, however, in salol as an intestinal disinfectant in chronic intestinal catarrh, and in antipyrin to ward off attacks. Much depends upon how far the patient can or will co-operate. Thus, even apart from alcoholic habits, it is almost impossible to cure a cabdriver in cold weather.

*Local treatment* is very important; the irritation of the nails in scratching has a most injurious effect on the already irritated cutaneous nerves, and yet to tell the patient not to scratch is useless, unless relief is afforded in other ways. One of the most important preventives is the preservation of a uniform temperature.

The clothing and bedding also should be light and absolutely unirritating; at the same time the patient must be guarded against chills. Jacquet demonstrated the importance of this by preventing urticaria entirely in one part of the body by wrapping it in wadding.

The same remedies do for both acute and chronic cases; alka-





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line baths, warm but not hot, with or without scalded bran, or starch, sulphid of potassium, or carbolic acid baths, are all useful (Medicated Liquid Baths, F. 1, 2, 6), but they must be used with care, as subsequent exposure to a different temperature will bring on an attack. Some forbid baths on this account.

Dusting freely with flour relieves acute cases. Sponging with vinegar and water, or citric acid in chloroform water, have their advocates, but the best remedies of this class are, I think, the disinfectants. I have tried a large number, and they are all more or less useful. Foremost I would place liq. carb. detergens 3 ij or 3 iij to water  $\frac{3}{4}$  viij; sanitas and water equal parts; terebene  $\frac{3}{4}$  j to  $\frac{3}{4}$  viij; salicylic acid, made soluble with glycerin and borax, 3 ij to  $\frac{3}{4}$  viij; benzoic acid in saturated solution; carbolic acid 3 j or 3 ij to 3 viij; evaporating lotions of spirit and water; or spirit and lead lotion (Antipruritic Lotions, F. 20 to 38); chloral camphor may be painted on, or camphor ball or menthol rubbed on obstinately itching spots. So many are mentioned because, in chronic cases, either they lose their effect after a time, or, what is more likely, the patient loses faith and wants a change, but the first two are my favorites. Acute cases yield most rapidly, and even the chronic urticaria of children may be temporarily held in abeyance by keeping them in bed.

### URTICARIA PIGMENTOSA (Sangster).\*

*Synonym.*—Xanthelasmoidea (Fox).

This affection differs from ordinary urticaria in many ways, besides the presence of pigmentation with, or after, the wheals. As already stated, pigmentation occasionally follows ordinary urticaria in adults, and although thus entitled to the above name it would not connote the affection now under consideration, which with very few exceptions commences in early infancy.

\* *Literature.*—Author's Atlas, Plate VI., illustrates nodular or xanthelasmoid form. St. Louis Atlas, Plate XLIX., shows the mixed type in an atypical form—*Brit. Med. Jour.*, September 8, 1869; *Clin. Soc. Trans.*, vol. xviii. (1885), p. 12 (case by the author, with analysis of previous cases and colored plate of the mixed form). Colcott Fox's essay in *Med. Chir. Trans.*, vol. lxvi. (1883), p. 329, gives abstracts of all cases up to date and microscopical diagrams. Paul Raymond, "L'Urticaire Pigmentée," "Thèse de Paris," 1888, gives a complete *résumé*—relates fully twenty

The first case on record is Nettleship's (1869), and although there have been probably a hundred cases recorded since his, most of them in Great Britain, it is still a rare disease. I have had eight cases under my care representing the three types of the affection. These are: (1) *The nodular, or xanthelasmoid type*, originally described by Tilbury Fox, which is the rarest form; (2) *the macular*, in which there is only pigmentation, without or with very slight elevation of the lesions, which Sangster brought into notice and gave the title which has been generally accepted for the disease as a whole, though it only fits this phase of it, and (3) *the maculo-nodular, or mixed type*, which from its frequency and its containing all the elementary lesions may be taken as the most representative form and will be considered first.

*Symptoms.*—The eruption begins in the first six months of life, and is most abundant on the neck and trunk, next upon the limbs, face, and head, and only occasionally on the palms and soles; but no part of the body surface is exempt, and it has been observed on the palatal, buccal, and pharyngeal mucosæ. It commences by the formation of nodules or wheals, which are formed rapidly, often appearing in the course of the night, and are arranged singly, or in groups of three or four. In Hallopeau's case they were in oblique rows in the line of the ribs—a proof, he thought, of a nervous distribution and origin; but, in my opinion, only due to the lines of cleavage in which the blood-vessels run.

At first they are about the size of a small split pea, distinctly and sharply elevated above the general surface, and of a yellowish-red color, with a narrow pink areola; subsequently they increase in size, sometimes by coalescing, and some of them may become of a distinctly yellow or buff color; these, while they resemble a wheal in form, approach a xanthoma nodule in color, but are firmer, and rarely of so bright a yellow. As fresh lesions are forming every few days, there may be seen simultaneously,

nine cases. Doutrelepont, *Archiv. für Derm. u. Syph.*, vol. xxii (1890), p. 311, gives references to several other recent cases besides his own, and reports of cases are now too numerous to specify, but L. Blumer, in *Monatsh. f. prakt. Derm.*, vol. xxxiv., 1902, No. 5, p. 213, gives a large number of references, but he includes some adult cases of pigmentation after urticaria which do not belong to true U. pigmentosa.

in different parts of the body, nodules from the size of a hemp seed to a large bean, and extensive infiltrations, with the color varying from a brownish-red in the recent, up to pale or deep fawn in the older formation. When once the nodules are fully formed and have become yellow they may remain unchanged for a long time, even for years, though after friction or a scratch they usually redden and become more prominent; occasionally, also, bullæ with clear contents form upon them, and dry up in a few days, leaving a thin crust upon the nodules. Other nodules may, after a variable time, shrink and become soft, wrinkled, and ultimately disappear, leaving brownish pigmentation, or, as in Hallopeau's case, white cicatrices. He has also noted cases with scarring due to vesiculo-pustules on the lesions. After a variable period, always several years, fresh nodules are no longer formed, and the old ones are gradually absorbed by the time puberty is reached, if not sooner. In Levinski's case,\* however, fresh nodules were still making their appearance at eighteen years of age. In Morrow's it had lasted twenty-two years, and other cases also show its persistence into adult life.

Itching, often severe, usually precedes and may accompany the formation of the nodules, and with this ordinary wheals appear, and factitious urticaria is common, and should always be tried for; ecthyma may appear as another consequence of scratching. In some of these cases the wheals and the bullæ preceded the nodules, but it is probable that the bullæ do not form independently of wheals or nodules.

*Variations.*—In non-pruritic cases all these secondary lesions are absent. The deep yellow xanthoma-like lesions may also be absent, the eruption consisting entirely of yellowish-red or brownish-red lesions.

In the *Macular* form, while the general symptomatology is the same and wheals appear from time to time, the only permanent lesions are fawn-yellow pigmentary stains on the site of wheals and usually level with the skin, but occasionally slightly raised, permanently or temporarily. In one of my cases the stains were closely set over the whole of the trunk and limbs, the face alone almost escaping. After several years of treatment the wheals ceased to appear and most of the staining faded away.

In the *Nodular* form the permanent lesions are all, or nearly

\* Virchow's *Archiv.*, Bd., 88, 1882.

all, firm or yellow and xanthoma-like, as in my Atlas case. They usually begin as dullish red or copper-colored patches, which subsequently become yellow. The majority are from a pea to a bean in size, but may be larger from coalescence, and in Barr's case there were numerous plaques of great size.\*

Wallace Beatty † has recorded three cases of urticaria with pigmentation presenting several peculiarities. Two were brothers, æt. twelve and fifteen; the other was a lady, æt. twenty-three. They all had urticaria of the ordinary type, and one boy had also factitious urticaria. Besides the ordinary wheals, extremely irritable red papules, from a quarter of an inch in diameter, appeared in crops, which in a few days flattened down and became brown spots of corresponding area, many of them with a white center; in the case of the boys the brown spots, which were rather larger than those of the lady, ultimately became quite white, smooth, foveated, or with radiating lines on the surface, and firm to the touch and level with the skin, but there was no atrophy of the skin structure, only of the pigment. The affection was very chronic and affected all regions of the body. Elliot's ‡ case was probably one of this kind.

*Etiology.*—The majority of the cases have been boys (six out of eight of my cases). Nearly all have commenced before six months, and the majority under three months. The earliest age was one of my own cases, in which red patches were noticed when he was first washed, and white wheals came a day or two later; of later origin are Stelwagon's case at eighteen months; a case of mine which began after chicken-pox § between five and six years; of Tenneson, æt. ten years (mast-cells found). Whether Liveing's, Mackenzie's, Pringle's, and some other cases

\* *Vide* case of xanthoma multiplex, *Lancet*, May 12, 1888, p. 923. Dr. Barr was kind enough to show me this case, which had some very large permanent yellow plaques. Factitious urticaria was also present, and I had no doubt of the case being an urticaria pigmentosa. See also case reported from Russia in *Brit. Jour. Derm.*, vol. iii. (1891), p. 65. as xanthoma in a child.

† *Brit. Jour. Derm.*, May, 1891, p. 136.

‡ *Amer. Jour. Cut. and Gen.-Urin. Dis.*, vol. ix. (1891), p. 296.

§ A. Woldert also records a case of a male child, æt. three months, after varicella. *Abs. Brit. Jour. Derm.*, vol. xii. (1900), p. 362; and Pick, in Kaposi's *Festschrift*, records a case following vaccination and commencing on the vaccinated arm as U. perstans.

of adults with pigmentation and urticaria are examples of true *U. pigmentosa* is open to doubt, but in Elliot's case, where the eruption began in a man æt. twenty-eight, mast-cells were present in the lesions in great quantity, while in a case of Quinquaud's, æt. fifty-five, mast-cells were absent, and Lesser had an adult case in which there was no excess of mast-cells. The very early commencement of most cases suggests some congenital predisposition, but beyond this we cannot go. In one of my cases gastro-intestinal catarrh was a prominent cause of the activity of the disease.

**Pathology and Anatomy.**—Since Unna's\* observations in 1887 have been fully confirmed and are now generally accepted, those of his predecessors need not be discussed, though those of Thin, the Hoggans, and Colcott Fox may be specially mentioned. Unna says the epidermis is unaltered, except from the accumulation in the basal prickle layer of ordinary pigment, and some stretching and flattening. Immediately beneath the epidermis there is an enormous accumulation of mast-cells filling up the papillary layer, and the edema is limited to the papillary body. The deep part of the corium is almost unaffected.

The accumulation of mast-cells, which are supposed by some to be derived from the blood-cells, by others from the connective tissue cells of the cutis, are now considered by most observers, except Doutrelepon and Neisser, to be pathognomonic of true *U. pigmentosa*, and would distinguish it from the pigmentation following ordinary wheals, seen in a few adult cases, in which there are no mast-cells in excess. Slight differences from Unna's observations have been found by others, such as slight hemorrhages in Pick's and Fabry's cases. Brongersma, in Galloway's case, found the mast-cells throughout the whole corium and subcutaneous tissue in rows and columns, the cells being polygonal from pressure, except near the center of the lesions, where they are of the usual spindle shape. Further, Galloway and Brongersma found edema throughout the whole cutis. My own observations agree with these.

Gilchrist examined from a case of *U. pigmentosa* a piece of normal skin, a four-minutes', an eight-minutes', and a twenty-minutes' wheal. He found in the normal skin more mast-cells throughout than would be found in the skin of a normal person, and there was progressive increase round the vessels and skin appendages in the wheals in proportion to their duration. Hence Brongersma infers that the mast-cells must be derived from the connective tissue, and that the pathogenetic factor is a congenital tendency for the connective tissue cells to develop into mast-cells, and the urticarial wheal, or angio-neurotic element, is a secondary phenomenon, possibly the result of a toxin derived from the degenerated

\* Unna's "Histology," p. 955, references to 1891. Gilchrist, Johns Hopkins *Bulletin*, vol. vii. (1896), p. 940; Brongersma, *Brit. Jour. Derm.*, vol. xi. (1899), p. 177, with the most important references to date.

cells, and that the permanent lesions of *U. pigmentosa* are of the nature of tumors—a view practically that of Unna, who regards them as “stagnation tumors.”\* Even if it is true that the degeneration products act as toxins in the production of the urticarial element, that would not necessarily make it an entirely different disease. For it is fairly arguable that all urticarias are only angio-neuroses secondary to some toxin, and not only is their urticarial character evidenced by the consideration of



Fig. 11.—Section from border of a yellow plaque of several years' duration, showing masses of mast-cells running for most part in lines, and situated below the papillary layer of the corium.  $\times 1$  in. Ross.

the recorded cases as a whole, and not by aberrant cases like Fox's and my own first case, but most of the distinctive appearances of this eruption are seen as occasional features in ordinary urticaria. Thus, great persistence of the wheal is seen in *U. perstans*; bullæ occur in *U. bullosa*; pigmentation follows ordinary wheals in many cases. Exudation into the papillæ is seen in *U. papulosa*, and hemorrhage in *U. hæmorrhagica*.

\* Unna uses this term in a special sense different from the ordinary meaning of “tumor,” and applies it to any accumulation of cells, even flat plates, like those of *keratosis palmæ*, or, as he calls it, *keratoma*.

And the clinical and histological facts can best be reconciled by the theory of a congenital predisposition to the production of auto-toxins which act on the vaso-motor nerves, the toxins perhaps being derived from the accumulation of mast-cells. But what makes the mast-cells \* accumulate?

*Diagnosis.*—The permanent buff-colored, wheal-like nodules generally associated with ordinary wheals, and always commencing in early infancy, are quite distinctive; but when the per-



Fig. 12.—A portion of Fig. 11 highly magnified.—Mast-cells in rows.  
 $\times \frac{1}{2}$  immersion. Powell and Lealand.

manent lesions are distinctly yellow, without itching or any urticarial symptoms, and the case has gone on for a very long time, it is liable to be mistaken for xanthoma tuberosum. A careful study of the lesions and of their mode of development, with their firmness to the touch and the early age of onset, will distinguish them, and if urticaria factitia can be produced strong confirmation would be afforded. Pigmentation following wheals, and without any permanent lesions, is met with at all ages.

*Prognosis.*—The disease will probably get well ultimately by the time puberty is reached, if not before, but this is all that can be said of it for most cases, but in one of mine with yellow nodules, which began when three weeks old, the lesions underwent spontaneous involution before he was a year old, leaving cicatrices.

*Treatment.*—Nothing hitherto tried has appeared to have any effect in removing the eruption, though much can be done to relieve the pruritus by local means, which are of the same kind as for ordinary urticaria. In one of my cases of the Sangster type with chronic intestinal catarrh and offensive motions, relief was always obtained if the bowels were put into order, espe-

\* Mast-cells (Ehrlich) are now regarded as coarsely granular basophile leukocytes corresponding with eosinophile leukocytes except in their staining capabilities (Green's "Pathology"). Some authors still regard them as transformed connective tissue cells. They are stained red by Unna's polychrome methyl-blue method.

cially by the use of salol and benzo-naphthol and other intestinal disinfectants, in three- to five-grain doses. After about five years' treatment, much of it spent in educating the mother as to the dietary, avoiding sweets and undigested starch, not only did the wheals cease to appear, but the greater part of the pigmentation faded. In another case, where there was no indication in the health to follow, small doses of Liq. Fowleri  $\text{mij}$  three times a day had a marked controlling influence in preventing fresh development, but only a few of the minor lesions disappeared.

### PRURIGO.

*Deriv.*—*Prurire*, to itch.

*Synonyms.*—*Fr.*, Strophulus prurigineux (Hardy), Scrofulide boutonneuse bénigne (Bazin); *Ger.*, Juckblattern.

*Definition.*—A disease, characterized by the presence of constantly recurring, discrete, chronic inflammatory, white or pale red, slightly raised papules, most abundant on the extensor surfaces, and accompanied by intolerable itching.

There are two varieties of this disease—*P. mitis* (Willan) and *P. ferox* (Hebra),\* the difference being one of intensity rather than kind. The latter has only been recognized since 1881 as occurring in this country, and even now extreme forms are rare. Other varieties have been made by some writers, by using the term prurigo in the same sense as pruritus. This leads to confusion, and should be avoided. Hutchinson's "Summer Prurigo" is described under Recurrent Summer Eruptions. Besnier would like to revive Willan's strophulus, lichen, and prurigo under prurigos, but this is to put the clock back, and the modern view is to restrict the term as above stated.

*Symptoms.*—Individually, the papules are the color of the skin

\* Author's Atlas, Plate VII.; medium severity. Hebra's Atlas, Plate VII., Lief. iv.; extreme of thighs and knees. Mr. Morratt Baker read a paper on "Prurigo," at the International Congress of 1881, and showed some cases which the German authorities present acknowledged to be true prurigo of Hebra. In 1855 White of Boston says that its frequency in Vienna was 1 in 45. It was a subject of discussion in the third International Congress on Dermatology, 1896. *Vide* articles by Besnier, J. C. White, etc.

at first, to be felt, rather than seen; but as they get scratched they become more raised, convex, pale or even deep red, with a dark scabbed top (blood-crust) at the apex. Their size is from a hemp seed to a large pin's head, and they are never grouped. They are most abundant and highly developed upon the extensor surfaces of the extremities, and in the order of intensity occur on the legs below the knee, the front and outer surfaces of the thighs, the forearms, the thorax back and front, the sacral region and buttocks, the lower part of the abdomen, the arms, and dorsum of the feet.

A few papules only appear on the face,\* whilst the flexures are almost always free, as are also the neck, palms, soles, and scalp. The hair is, however, dull, dry, and dusty-looking. The itching is most intense and the consequent scratching produces thickening and hardening of the skin, striated and diffuse pigmentation, deepening of the natural furrows, while the lanugo hairs of the surface are broken off or torn out, and fine mealy scales are abundantly detached. When the disease shows no further symptoms than these, and the papules are moderate in number, or, as occasionally happens, limited to the lower extremities, it constitutes the *P. mitis* of Willan; but when it attains to the intensity of *P. ferox*, the papules and scales are more abundant and larger, the legs and forearms feel like very coarse brown paper, which is a characteristic symptom, the subcutaneous fat is atrophied, and secondary lesions are so invariably present, though not without intermission, as to be essential parts of its symptomatology.

These are (1) eczema, which may be so extensive as to cover the parts with crusts and mask the original disease, the flexures, however, being rarely involved; (2) urticarial wheals; (3) ecthymatous sores; and (4) sympathetic enlargement of the femoral glands, often developing into large tuberosus masses; while those in the axillæ and above the elbows are also enlarged, but to a less extent. This gland-enlargement remains when the other eruptions are quiescent for a time, and may thus assist in the diagnosis.

There is no special defect of health associated with prurigo,

\*"Summer Prurigo," in which, in summer, the prurigo appearance is closely reproduced, is in most cases limited to the face, forearms, and hands.

except what may be due to loss of sleep; but of course they are liable to the same diseases as other people. The face is generally clear and pale.

*Etiology.*—It affects both sexes, but males twice as often as females, according to Ehlers; it is essentially, though not exclusively, a disease of the poor, want of food and bad hygiene being the most important factors; and, according to Hebra, it is aggravated by cold weather. This, however, is contrary to my experience; some cases certainly come out worse every winter, but all my severe cases were better in winter, while, of the mild cases, some were worse in summer and some in winter. As regards age, it begins usually in the first year of life—in one of my cases it dated from one month old, but Ehlers speaks of a few days after birth. Hebra's dictum that it always began in infancy is given up. I have met with cases at various ages up to twelve, and many observers not only corroborate this, but extend it up to twenty-nine (Ehlers).\* No doubt, however, cases beginning over six years old are exceptional.

It probably begins as an urticaria papulosa or lichen urticatus, in favor of which there is a preponderance of testimony, but Besnier still holds that prurigo is not developed from urticaria, and in this Colcott Fox agrees. Comby, on the other hand, quotes cases in which the transition from urticaria to Hebra's prurigo apparently occurred. Few, if any, now accept Hebra's view that the papules are primary, for, as Besnier truly says, "the pruritus survives the papules; the papules never survive the pruritus."

At the beginning of the second year, according to Riehl, small wheals appear together with the larger wheals, and it shows its predilection for the special regions already mentioned; but it is not until the end of the second to the fifth year that the disease is fully developed, the papules increasing in number more and more, while the larger wheals decrease. Thenceforth, unless vigorously and persistently treated at once, it persists through life, though with marked occasional remissions, either in warm weather or cold weather, according to the special idiosyncrasy. These are the only positive factors as to its etiology which are

\* Ehlers found that the extremes were from a few days to twenty-nine years. He analyzed 207 cases from Haslund's clinic. *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 861.

established, but there are many to negative the various hypotheses that have been put forward to explain it.

Some pale, intensely itching papules, soon becoming scabbed-topped, sometimes appear in the later stages of Hodgkin's disease, and constitute the "Pseudo-leukemic prurigo" of German authors.

*Pathology.*—The real pathology of this disease is unknown. Hebra says the clinical facts are against its being a pure neurosis, and that the papules are always primary; but the evidence of the primary eruption being an urticaria is almost conclusive, and gains acceptance in most quarters, and would go far to prove that it was a neurosis to which all the eruptive phenomena were secondary. Ehlers regards antecedent urticaria as merely a coincidence, but on the other side cases like that of Hallopeau \* and Barrié may be cited.

*Anatomy.*—Anatomical examination † of the skin has been made by numerous observers, both ancient and modern, from Hebra and Kaposi downward. Only the more modern, such as those of Riehl, Kromeyer, Leloir and Tavernier, and Unna, need be mentioned. Unna examined eleven papules of prurigo gravis, and his results are those chiefly embodied here. He agrees with Riehl that every prurigo papule has an urticarial basis. There is always a spastic edema of the cutis and great increase in the number and size of the perithelia of the vessels, the latter being greatly thickened. In addition, he confirms Leloir and Tavernier, who found cavities formed by degenerated prickly cells, covered with thickened horny layers, so that the vesicle is invisible to the naked eye, even when, as a consequence of scratching, the cavity gets filled with leukocytes and becomes a pustule with its base on the papillæ, its apex at the split horny layer, through which it is sometimes visible as a yellow point. Unna says that there were no staphylococci in the pus, but there were some other minute cocci, singly and in pairs. Unlike Leloir, he found no connection between the vesicles and the sweat pores. He also, like Auspitz, found the arrectores pili in spastic contraction, so that the hair in the center of most papules, if not torn out, is erected, and in addition he finds proliferative and exudative inflammatory changes and necrosis of the follicle, to which Caspary originally called attention. In brief, there are a series of epithelial changes with both growth and necrobiosis of the surface and follicles above a central severe cellular infiltration of the cutis; these changes originating in a chronic perivascular growth, and an acute spastic edema. In old-standing cases there are also secondary changes which prurigo shares with eczematous

\* *Ann. de Derm. et de Syph.*, vol. iii, (1892), p. 520.

† Unna's "Histology," p. 136, gives the most important references.

dermatitis of long standing, when there is the condition described as "lichenification" present.

*Diagnosis.*—The disease dating from infancy, with the pale red, scabbed-topped, itching papules on the extensor aspect of the limbs, the nutmeg-grater sensation they give to the touch, the excoriations, secondary eruptions, and enlarged glands, constitute a very characteristic group of symptoms. As it is the combination of the various lesions which makes up the diagnosis, error in well-marked cases can arise only by making an imperfect examination.

The disease most liable to be mistaken for it is *severe chronic eczema in a xerodermatous subject*, especially as both xeroderma and prurigo date from infancy, and have a harsh, dry skin; but there are neither characteristic papules nor the secondary lesions of prurigo in the eczema, which would probably affect the flexures, and all similarity would vanish upon removing it; moreover, there would be comparatively long intervals of freedom from the eczematous condition.

The knowledge of the possibility of confusion, and the exercise of ordinary care, will prevent error as regards *pruritus cutaneus* from pediculi, acari, or other cause; the same may be said of chronic urticaria, eczema, and ecthyma; they, however, are not liable to be mistaken for prurigo, but, being complications, may mask it when extensive, and be regarded as the primary, instead of the secondary, lesions.

Difficulties arise, however, in the first years of life in severe cases of urticaria papulosa, when it might be open to doubt as to whether it will go on to prurigo, a view which would be favored in proportion to the severity and persistence. Cases which begin after infancy might also be open to doubt. They are usually of mild character, often with partial distribution, and the complications would be absent or slight, such as impetigo contagiosa and urticaria, the severity of the itching being out of proportion to the apparent mildness of the lesions. The persistence of the papules and the rebellious character of the eruption to treatment would be the chief guides.

*Prognosis.*—This depends upon the age of the patient and the duration of the disease. It is curable in early life, occasionally also in adults; as a rule there are remissions, and the patient's

sufferings may be alleviated by treatment, by which the lesions are so much reduced that delusive hopes of a cure are entertained, but only to be disappointed. Much depends upon the persistence of the treatment which can be afforded to the patient, so that relapses can be promptly dealt with. The cases of the greatest severity (fifteen per cent., Ehlers) are perhaps incurable from the first.

*Treatment.*—The indications are to relieve the itching, to remove the eruptions, both primary and secondary, and to improve the general health. To fulfill the first two indications, external remedies must be chiefly relied upon, and applications which produce softening and removal of the uppermost layers of the cuticle are, according to Hebra, the most effectual; but internal remedies may afford some relief to the itching. Improved hygiene, especially a liberal dietary, cod-liver oil, and iron, are the most effectual means to restore and maintain the general health; but it is astonishing how much temporary benefit, both to the lesions and the comfort of the patient, is sometimes produced by merely keeping the patient in bed, and giving a liberal diet.

I have found, also, that the tincture of cannabis indica, given internally, exercises a marked influence over the itching, mitigating it considerably; it must, however, be given in full doses; *e. g.*, for a child of eight or ten I begin with five minims, and increase it up to even thirty minims, three times a day, directly after meals, allowing an interval of a fortnight in its administration about every six weeks. When taken in these large doses for a long period it may produce dullness of intellect and loss of memory, effects, however, which soon pass off when the drug is suspended. Blaschko says that antipyrin, beginning with two-grain doses, also gives great relief. Dobrowski has found that thyroid extract suppresses the eruption as long as it is taken, but does not cure. Any eczema or ecthyma that may be present having been first removed by the usual means, I have found the following course of treatment effectual for the alleviation of the remaining skin troubles: the daily use for half an hour of alkaline baths  $\frac{3}{4}$  ij to  $\frac{3}{4}$  iv sodæ bicarb. to thirty gallons water at 90° F., inunction of oil of cade  $\frac{3}{4}$  j to  $\frac{3}{4}$  j of lard or vaselin or of naphthol ointment as below, twice a day; tincture of cannabis indica internally as first described, cod-liver oil and iron when

indicated, and plenty of good food. I have also employed sulphid of potassium baths with benefit.

Massage, preferably with a lubricant like vaselin, has been found by Murray of Stockholm to give great relief to and even to abolish pruritus for a time, and thus to procure the subsidence of secondary eruptions. Hatschek of Vienna and others confirm this.

There are several modes of treatment recommended by the Vienna school, where they see a far larger number of cases than we meet with in England.

*The soap treatment* of Hebra is very effectual, especially where there is great infiltration of the skin. A piece of flannel moistened with warm water is dipped into the spiritus saponatus alkalinus (Lotions, F. 5), or into the fluid glycerin soap, and the parts rubbed briskly for some minutes; the latter is then washed off, and the body rubbed over with vaselin or other emollient. This process is to be repeated daily for a week. The skin should then be rubbed over with an emollient, and after an interval the treatment repeated. It is unsuitable for very young children, or where there are any sores or much eczema.

*The Sulphur Treatment.*—This may be applied in various ways and combinations—sulphid of potassium baths or sulphur fumigations, sulphur and sulphur-sand soaps, or Hebra's sulphur ointment used as follows: Rub it well in all over, after the patient has had a bath; let him lie thus smeared, naked between blankets, and repeat the inunction night and morning for a week. The patient is then to get up, and in three days the epidermis begins to be shed, and he should then have another bath. After the course, slight cases appear quite well, severe ones much better. This plan is suitable for older patients who can give themselves up entirely to treatment.

*Vlemingkx's solution* of lime and sulphur (Parasiticides, F. 11), though not quite so effectual as the ointment process, can be employed without the patient giving up his occupation. It is suitable for cases with dry papules only; the patient, after a thorough washing with soap and water, should be well rubbed with the solution, then take a warm bath for an hour, and afterwards a cold shower-bath. My own form of nascent sulphur and sulphurous acid treatment (F. 37) is a milder but efficient variant.

*The Tar Treatment.*—The tar bath gives good results; common

tar or carbolic acid is painted on with a brush, and the patient immediately steps into a warm bath, and stays there for from three to six hours;\* the process may be repeated until it produces an intense burning sensation, or tar acne is produced. Carbolic or tar soaps or lotions, such as liquor carbonis detergens diluted, are also useful, or any of the above preparations of tar made into an ointment, and, indeed, the inunction of any form of grease gives some relief.

*Naphthol  $\beta$  Treatment.*—This is strongly recommended by Kaposi, as equally efficient and more pleasant than the other methods, and it is also curative for the eczema complications. A five per cent. ointment for adults, or a two per cent. for a child, is lightly rubbed in every night, and every second night the patient may be washed with naphthol sulphur soap. This treatment is continued until the prurigo manifestations disappear, and renewed whenever the disease returns. I can indorse Kaposi's recommendation.

According to Tenneson, complete occlusion from the air for several days gives immediate relief from the incessant itching, which may last for days, weeks, or even months, in mild cases. India-rubber clothing is the most practical way of carrying out the plan, but confinement to bed is simpler and almost as good.

Perchlorid of mercury baths are recommended by Woolmer.

Which of the above methods should be chosen depends upon the severity of the disease and its complications, the age and occupation of the patient, and the time he can give up to treatment; *e. g.*, for infants and young children, alkaline baths and one of the tarry ointments, with the administration of cod-liver oil, will probably be efficient. Bed, cannabis indica, and naphthol ointment are my chief means of treatment. Indications for the use of the various methods have been given under each, but it must be borne in mind that whichever plan is selected must be carried out vigorously and perseveringly for the cure of the young children and the relief of the older patients.

\* In all cases the patient should be carefully watched, as faintness may ensue from such prolonged immersion.

**ECZEMA.**

*Deriv.*—*Emzēa*, to boil over.

*Synonyms.*—*Fr.*, Eczéma; *Ger.*, Eczem, nässende Flechte.

*Definition.*—An acute or chronic catarrhal inflammation, attended with severe itching, burning, and great multiformity of lesions, viz., erythema, papules, vesicles, pustules, scales, scabs, etc., while a continuous discharge of serum or pus is generally present in some part of its course except in the mildest forms.

Dermatologists differ so much as to what conditions should or should not be included under eczema, that it is necessary to state *in limine* what the term connotes in this section. First as to what is excluded. All forms of seborrheic dermatitis which are treated in a special section under Seborrheides. 2. Those forms of dermatitis due to strong irritants which excite in all persons exposed to them a violent inflammation, clinically and anatomically distinguishable from eczema. This subsides spontaneously when the irritant is removed, or at all events the inflammation is readily subdued by treatment. These are discussed under Dermatitis. On the other hand, there are many substances which are not irritants at all to the majority of those exposed to them, but in certain predisposed persons produce a dermatitis indistinguishable from eczema, not only in the part to which it is applied, but which will spread beyond this, and even lead to a similar inflammation, often symmetrically distributed in distant parts. These forms of dermatitis are included here on grounds which will be discussed under Etiology.

Eczema is the most common of all eruptions, and constitutes at least a fourth of the cases of all kinds of cutaneous disease (Bulkley finds it one-third). It is most protean in its manifestations, often extremely persistent, while it is frequently associated with, and dependent upon, many other morbid conditions, both external and internal. It is impossible to give a single definite and at the same time complete picture of even acute eczema in all its phases, but all the variations are primarily referable to four kinds of elementary lesions, so that the eruption may be *vesicular*, *pustular*, *papular*, and *erythematous*, with more or less scaliness, primary squamous eczema being a sub-

variety of the erythematous form. These may be combined in various ways and degrees of development; and may further be modified by an increase or decrease in the intensity of the inflammation; by the difference in the position and anatomy of the part attacked; or by the inflammation attacking only a part instead of the whole structure of the skin, *e. g.*, the hair follicle or sweat gland; and lastly, by secondary changes resulting from long-continued inflammation.

Whilst these elementary lesions are readily recognizable in all acute stages, they are not always so in cases, subacute either at the commencement or in the decline of the attack, nor in some of the chronic forms, from secondary changes in the skin. These modifications will be pointed out in their appropriate places.

The four primary forms have the following points in common: they are all acute in development, though of indefinite duration; each may come upon any part of the body, but at the same time has its favorite seat, on which it most frequently occurs and is most highly developed. Whilst, on the one hand, only one form may be present, and running its own course, seem quite a distinct disease from the others; on the other hand, vesicles, pustules, papules, and erythema may be present all together, more or less mixed up, or on separate parts of the body, so that there can be no doubt that they are merely different expressions of the same morbid process.

Then again, instead of preserving their special characteristics, the erythematous and papular forms may develop into the vesicular, and this again into the pustular variety, or the process may stop short at any point. Thus, then, the division between these forms is not an absolute one, but is useful for description, and to gain a clear conception of a complex process.

Eczema in all forms, when not due to a local cause, is roughly symmetrical, though one side is often worse than the other.

**E. Vesiculosum.** This is a common,\* and in one sense the most representative, form of the disease. It is seen best and most commonly where the skin is thin, *i. e.*, on the flexor aspect

\* Unna, "On the Nature and Treatment of Eczema," *Brit. Jour. Derm.*, vol. ii. (1890), p. 231, says it is the least frequent; but, excluding his seborrheic form, this is not my experience.

of the limbs, especially the flexures, between the fingers, behind the ears, etc. It begins with burning and itching, soon followed by the appearance of diffuse or punctate erythema, on which minute, closely aggregated, clear vesicles develop, enlarge, perhaps coalesce, and soon rupture, either spontaneously, or from scratching, exuding a clear, plasmic fluid, which stains and stiffens linen; the part all this time being intensely red, hot, and itchy, and attended with more or less infiltration and swelling. The itching is relieved somewhat when the vesicles rupture, but the burning remains, these symptoms being always worse at night, and when fresh vesicles are forming.

Unlike other vesicular diseases, the rupture does not terminate the active part of the process, but there is a continuous discharge, either from fresh vesicles, or more frequently from the site of the ruptured vesicles, and whenever it is irritated by scratching into an excoriated surface. It is this weeping stage that is most frequently seen, the vesicles having generally ruptured before the patient applies for relief; or, as very frequently happens, the violent itching or burning induces corresponding rubbing or scratching, which denudes the surface sufficiently to allow of the escape of the fluid without actual vesicles being developed, or, if the outpouring of fluid from the vessels is gradual, the epidermis may crack and ooze without the formation of vesicles. Where the part is not disturbed the discharge may dry up into yellowish gummy crusts, and on removal a moist surface is exposed, on which a new crust soon reforms.

In a favorable case, after a few days the fluid ceases to exude, the redness diminishes, the denuded part skins over, and only some transitory redness is left; or the subsidence may be less complete, and, though the discharge ceases, there is still redness and thickening, and the part is covered with scales instead of crusts. This is *E. squamosum*, a condition which will be more particularly described presently; or, instead of the exudation diminishing, it may, with the hyperemia and other symptoms, be increased, and the condition passes on into *E. rubrum*.

As a rule, however, none of these events takes place, and the discharge may continue, though there may be some improvement, but fresh vesicles are frequently forming, either at the border of the patch or elsewhere, and so the disease may cover a larger and larger area, until nearly the whole body surface is

involved. It is very rare, however, for eczema to be absolutely \* universal, and I have met with few instances of it; but it is very common for it to be very extensive and fairly earn the title of general eczema; on the other hand, it is often quite striking how the eruption limits itself to one locality, and, even when cured for a time, returns in a future attack at the same place.

It is astonishing how little the general health is affected, except in the aged, even in the most extensive cases. Pain, tension, and itching succeed each other with each fresh outbreak; the patient loses rest, is very sensitive to cold, and may experience a transitory sense of chilliness with each crop of vesicles, but he seldom has febrile or other symptoms affecting the pulse, temperature, urine, or feces.

**E. Pustulosum.**† *Synonym.*—Eczema impetiginodes.

Here, instead of vesicles, there are pustules due to pus cocci, and they may arise directly, or the vesicles may become pustules, which will be larger than the vesicles. It is most frequent in children and in those who are cachectic from any cause, especially the strumous, and is most common and typical on the scalp. It is often seen as a folliculitis elsewhere, and thus may be found on the beard and whiskers, pubes and axillæ, or scattered over the thighs; but there is less tendency to form patches than in the vesicular form, and the folliculitis is secondary, being left behind after the general inflammation of the whole skin structure has subsided. Below the elbow or knee, however, it is frequently seen covering almost the whole limb. It is attended, usually, with less irritation and less redness and swelling than the vesicular form, and when the pustules burst and dry up

\* Universal pityriasis rubra may, and often does, develop from eczema, but the eczematous characters are then merged into those of pityriasis rubra.

† E. impetigo was the term used by many older writers—impetigo being a generic term for pustular inflammation. Besides this, other qualifying terms were used by Willan and his immediate followers, such as *impetigo sparsa* for small scattered patches, *I. scabida* when there was unusually thick crusting, *I. erysipelodes* when the inflammation was deeper than usual. *Melitagra* was used for the honey-like crusts sometimes seen in *I. figurata*, and *crusta lactea* and *porrigo larvalis* were used for crusts on the face, in infantile eczema. Doubtless *I. contagiosa* was mixed up with these very often. All these terms had better be forgotten.

they form dark brownish-greenish crusts,\* which may cover a large suppurating surface. As the inflammation subsides the secretion is stopped, the crusts dry completely, and can be easily picked off, except in a hairy part.

**E. Papulosum.** *Synonym.*—Lichen simplex.†

This is a common and often very obstinate form. Originally it was thought to be a kind of lichen, on account of the papules, which are due to the inflammation, affecting only the hair follicles or small groups of papillæ. The papules may be either discrete, scattered irregularly, or grouped and perhaps confluent; and their favorite seat is the extensor aspect of the limbs and the back. They are about the size of a pin's head, acuminate, of a bright, less frequently of a dull red color, and may remain as papules throughout their whole course (**lichen simplex**). Often, however, with a lens a tiny cap of fluid may be observed, and when the vesicles on the top of the papules were evident and numerous the lichen was said to be inflamed, and it was called **lichen agrius**. When the papules were grouped in oval or roundish patches, a form not uncommon on the extensor aspect of the forearms and hands and on the calves, it was **lichen circumscriptus**.‡ In this variety the vesicles and papules often coalesce into a weeping patch, and then it looks like ordinary vesicular eczema in the discharging stage, except that it is in roundish or oval patches, more defined than those of eczema usually are, and situated on the extensor aspect of the limbs. All these names are now disused in the above described senses, though there are still some who regard lichen simplex as a separate disease, even though the vesicles and papules are so frequently associated. All the papular forms of eczema are troublesome, on account of their obstinacy to treatment, either from the same papules or vesiculo-papules remaining for a long time, or from their dying away and reviving again and again in the most capricious and persistent manner. While burning and

\* Author's Atlas, Plate VIII., Fig. 2.

† Lichen simplex chronique of Vidal is a different condition, described under "Lichen."

‡ "Lichen circonscrit" of French authors now is applied to the lichen simplex of Vidal. Lichen circumscriptus has also been applied to the totally different affection now called seborrhea papulosa corporis.

tingling are the usual features in the vesicular, itching of the most intense character is experienced in the papular form, and blood-crusts papules are the natural consequence. When the papules are closely aggregated, they may coalesce into a scaly patch, constituting a form of *E. squamosum* often seen upon the limbs.

**E. Erythematosum** is seen in its most typical form on the face; there it is attended with much heat and swelling, the edema sometimes completely closing the eyes. It begins in ill-defined erythematous patches at any part, and may rapidly cover the whole surface or remain patchy; the color is bright, or dull red, the surface is not glistening, but rough from a slight scabiness, and there is no discharge; after a time the scales cease to form, the redness diminishes, and it gets gradually well. In other cases the inflammation is constantly varying in intensity, now apparently getting rapidly well, and a short time after breaking out again as bad as ever, and this may go on for weeks, months, or even years. In other cases, again, it begins to ooze, by splitting of the epidermis, or with formation of vesicles, and discharges like the vesicular variety. When occurring on adjacent surfaces, as on and under the breasts or about the genitals, a muciform discharge ensues, and it is called *E. intertrigo*. On the other hand, the thickening and scabiness may gradually increase, and it lapses into *E. squamosum*. In some cases, not very infrequent, it takes the form of round or oval patches (**E. orbiculare**), well defined at the borders, two or three inches in diameter, bilaterally, but not symmetrically, scattered over a considerable area. Some authors regard this form as of seborrheic origin.

**E. rubrum** or **Madidans** may be developed from any of the above four varieties, though it is most frequently a sequence of the vesicular or pustular form. In it the inflammation is of a most intense character, and while, like the others, it may come anywhere, it is most frequently observed in elderly people on the legs, the whole of which may be involved. The surface is an intense bright or dusky red, entirely denuded of the upper layers of epithelium, weeps profusely, and discharges a clear or turbid, straw-yellow glairy fluid, which may dry into large yellowish or

brown crusts. These cover a great part of the limb, like a piece of armor, and when the edges are raised can be easily detached from the copiously discharging surface beneath, from which blood also exudes with the slightest friction. The infiltration is considerable, and as cases often last for a long time, the induration is great, especially on the lower limbs, and in the flexures, where it often occurs, deep and painful fissures are frequent.

There is a circumscribed variety which occurs, in my experience, only in persons of a markedly scrofulous type. In this, **Eczema rubrum scrofulosorum**,\* the patches are sharply defined, of round or gyrate outline, often by coalescence of considerable size, and situated on the lower part of the leg and foot. The surface is deep red, constantly discharges a sero-purulent secretion, and spreads slowly at the margin, and unless properly treated runs a very indolent course. The lesion is evidently due to microbic invasion, and the local treatment based on that view is the most successful. The usual constitutional treatment for scrofula is a valuable adjunct.

**E. Squamosum.** While *E. rubrum* is the result of increased, *E. squamosum* is an indication of decreased intensity of the inflammation, and a large proportion of cases begin and remain throughout their whole course as dry scaly patches.

It also may arise from any of the four primary forms, but it is most frequently a sequel of *E. erythematosum*—indeed, Hebra used the term in that sense. It is, however, better to restrict it to the subacute inflammations, whether primary or secondary to one of the more acute forms, as it is produced whenever the inflammation is of too low a grade to cause much exudation from the vessels, exciting instead hyperplasia of the rete cells. It occurs mainly as ill-defined irregular patches of variable size, in which there is redness, and when the patch is pinched up very marked thickening is felt; the red ground is more or less concealed by coarse or fine scales, which may be abundant or scanty, but easily detachable, and never adhere into crusts like those of psoriasis. As a rule, the patches are not so well defined as the eczema-form cases of seborrheic dermatitis, to which in other respects they may show marked resemblance.

\* Author's Atlas, Plate IX., Fig. 2.





ACUTE ECZEMA. SHOWING A COMMON DISTRIBUTION.

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This form is often well exemplified on the neck and limbs. In the mildest form it is not uncommon on the face, chiefly in children, as ill-defined, slightly scaly patches, with little redness and no perceptible infiltration; this used to be called **pityriasis simplex**, and is often due to the irritation of soap; it is often associated with seborrhea. In the more severe forms it may be obstinate, the secondary thickening being difficult to remove.

**Acute and Chronic Eczema.** These terms are used in different senses. They may refer to the intensity of the inflammation or to its duration. Eczema may run a short course with a high grade of inflammation, and then no one would dispute its right to be called "acute," but more frequently the course is a long one, consisting of a succession of acute attacks, or rather exacerbations, with but trifling secondary changes. For all practical purposes such cases are still acute, and require the treatment for an acute inflammation, but lasting for months are often called "chronic." In other cases again secondary changes occur as the result of long-continued inflammation, and become the most important element for the treatment; and though liable to acute exacerbations, the inflammation, as a whole, is less intense. Such cases are clearly entitled to be called "chronic."

These secondary changes are, first, induration and thickening of the tissues: when the induration is the main symptom it has been called "**E. sclerosum**"; then the hardness is almost board-like, and the surface scaly. It is seen most frequently and in its highest development on the legs.

In some instances, where the thickening is also very great, a condition indistinguishable from elephantiasis arabum is produced (**E. spargosiforme**). The tissues may be enormously hypertrophied, producing deep folds at the bends of the limbs, and sometimes indolent ulcers, and the limb is so cumbersome and useless that the patient is glad to be relieved of it by amputation. Of course these are only the worst cases, and there are all gradations up to this, which may be mitigated by treatment even when they cannot be cured. In some cases hypertrophy of the papillæ takes place, and a diffuse warty condition ensues; it may be covered with an epidermic crust, or an evil-smelling discharge may exude from between the papillæ; this is

"**E. verrucosum**" and "**E. papillomatosum**." These conditions may be combined in various proportions.

Ulceration and edema are also occasional events, chiefly in connection with varicose veins. The extreme conditions are very exceptional, but they are not always indicative of a very long duration. They are almost confined to the legs below the knee, as are also the modifications induced by varicose veins, such as orange, brown, or blackish discolorations from subcutaneous hemorrhages, and a livid hue of the patches, which sometimes simulate those of lichen planus.

It is common to see qualifying terms for eczema, simply indicative of their locality, such as "**eczema capitis**," "**eczema genitalium**," "**eczema palmare**," etc. They are for the most part simply convenient to express briefly the limitation of the eruption, but at the same time the clinical features are often modified by the locality. Some of these modifications will be specially referred to. In **eczema capitis et faciei** the inflammation is much more liable to take on a pustular form, and the inflammatory products are mixed with the sebaceous secretion, become entangled in the hair, and form thick crusts of a dirty greenish-black hue, often with a foul odor. "**Eczema faciei**," probably from its external position, is often very obstinate, being the last part to get well; and showing a great tendency to recur, even without apparent provocation. "**Eczema genitalium**," eczema of the scrotum or vulva, begins as an **E. erythematosum**, and is often limited, in the case of the scrotum, to the lateral surface, on account of the natural heat and moisture aggravating the inflammation. The pruritus is so intolerable that the patients lacerate themselves severely in seeking momentary relief by scratching, and much secondary thickening of the parts may thus be induced; also, owing to the moisture, scales and crusts do not adhere to any extent.

**E. Palmare.** Eczema of the palms and soles is so modified by the thickened epidermis of those parts that it is often called **psoriasis palmæ**. Vesicles are seldom formed, but there is congestion and great irregular thickening of the epidermis, and the constant motion and loss of flexibility leads to its splitting and forming fissures, chiefly in the lines of motion, which penetrate to the corium, and every movement is most painful, so that

the patient is quite disabled from manual employment. This is the *E. rimosum* of McCall Anderson. The inflammation may be limited to the center of the palm; but usually it starts at the root of the thumb or wrist, and gets into the palm subsequently. Longitudinal fissures often occur at the tips of the fingers and thumbs. The **nails** may also be involved; they become discolored, of a dirtyish-yellow hue, are pitted, furrowed, thickened or thinned, split both vertically and into lamellæ, and produce great disfigurement. When (chiefly in hyperidrosis palmæ) vesicles do occur on the sides of the fingers or palms, where the skin is thick, they often do not rupture spontaneously, but remain as small, transparent, dark spots, not raised above the level of the skin, and compared to boiled sago grains, or where the inflammation is very intense the original vesicles may coalesce into irregular bullæ. Between the fingers and on the back of the hands, where the skin is thin, they rupture readily enough. The well-known "chaps" are of similar pathology, except that there is not an eczema present, and that they are the consequence of local irritants, especially insufficient drying after being in water; but badly made soap, very hard water, handling acids, etc., are other common causes.

*Children.*—It is in what may be called "infantile eczema," that is, as it is seen under five years of age, that the most marked differences are noticeable. The chief of these is its much greater tendency to be pustular, a tendency which it shares with most kinds of inflammation in childhood. Another point is its being more easily excited by local irritation, and also reflexly, through irritation of the alimentary canal. The head and face, especially behind the ears and on the cheeks, are most frequently attacked, and when other parts are involved it is generally by spreading downwards from the head, though there are often intervening intervals of healthy skin.

In strumous children, and occasionally in others, subcutaneous abscesses are frequent, especially in the occipital region, and they may be very extensive. They often form rapidly and insidiously, with very little constitutional disturbance. Enlarged occipital and cervical glands are also common. In analyzing over 300 cases of eczema, under thirteen years of age, from the Children's Hospital at Shadwell, I found that under five years old there were 81 *per cent.* on the head and face, against

19 per cent. in all other positions; while from five to twelve the proportion was only 63 per cent. Where the eczema was in more than one region, both were counted. Adding 340 cases from Shadwell to 353 from University College Hospital, making 693 cases in all, there were 423 males to 268 females; 575 cases were under five years, while 176 were from five to thirteen; and of these 575, 327 were under two years; and of these again, 322 were under one year. The totals made about an equal number up to six months and below twelve months, and six years; but at University the number between six and twelve months predominated, while at Shadwell there were more up to six months. With this exception the number at both places agrees most curiously, and shows that one-third of all cases in children begin in the first year of life; and since many of the older cases had persisted since infancy, this is an under- rather than an over-estimate. In the second and third year the numbers are nearly equal—94 and 88; but after that the disease steadily declines in frequency to the sixth year, and from that age remains nearly the same up to thirteen.

According to Unna, the "*eczema capitis et faciei*" of children occurs in three forms—the seborrheic, the nervous, and the tuberculous. The tuberculous is the form seen chiefly on the face, or in association with conjunctivitis and rhinitis or otorrhea in the strumous children of the poor, and in my opinion is nothing more than a dermatitis excited by contagious pus—a form, indeed, of *impetigo contagiosa*. If the supply of contagious pus be stopped by suitable treatment of the conjunctivitis and rhinitis, the dermatitis is readily cured by the application of diluted ammonio-chlorid of mercury ointment, or similar antiseptic application.

Unna found that some of these cases improved under tuberculin injections, and thought it confirmed his opinion as to the tuberculous nature of the affection; but tuberculin may modify various kinds of unstable tissue, and I have seen warts disappear after one or two injections given for lupus.

The nervous form is, he says, due to reflex irritation chiefly from dentition, and is characterized by great itching and tendency to recur. It commences on previously healthy skins on the cheeks and forehead, and radial surface of the back of the hands and wrists, often spreading up the forearms to the lower

third of the arms. With this I agree, except that dentition plays a much less important rôle than he states, irritation of the alimentary canal from unsuitable food being the most frequent factor in the majority of cases, for the disease often starts long before teeth need be thought of. According to my observation, beyond a slight exacerbation of a pre-existing eczema just before the eruption of a tooth, the process of dentition is as harmless as *a priori* one would expect a natural process to be.

In the seborrheic form the skin was not previously healthy, a progressive seborrhea of the scalp having been present, perhaps from a few weeks after birth. After acquiring a moist character, it attacks the ears, forehead, cheeks, eyebrows, but not the rest of the orbits, and extends to the shoulders and upper part of the arms in usually dry, fatty foci; the fatty character is always preserved even when the surface is moist. The eruption is much less irritable than the nervous form, but more than the tuberculous, and has a constant tendency to generalize on the genitals, back, and lower limbs.

While this account is clinically a true description of some cases, I do not think there is such a sharp line of demarcation to be drawn between the nervous and the seborrheic forms, either as regards pathology, course, or treatment, as Unna does; indeed, he admits that it is not always possible to make the distinction, especially if not seen at the early stage, and his statements as regard treatment are only of limited application, viz., that ichthyol in the gelatin zinc paste must be prescribed for the nervous form, while it is useless in the seborrheic form, in which sulphur or resorcin ointments are the applications indicated.

*The Elderly.*—Chronic squamous patches, with great thickening, are frequent about the lower part of the legs. This arises partly from varicose veins, partly from the frequency of development of the gouty diathesis, the ankles being a favorite position for gouty eczema.

In very old people also eczema is one of the signs of decay or of defective elimination, and when acute, may leave freckle-like pigmentation behind it. Often it is very extensive, but mild in degree, being only slightly rough and red, with tendency to superficial splitting of the epidermis, and general paroxysmal itching out of proportion to the degree of inflammation. A con-

dition intermediate between psoriasis and eczema occurs sometimes on the hands of elderly women. The edges of the eruption are well defined, and the patches are dry, scaly, and intensely red and itching; but when there has been any eruption elsewhere, it has been more distinctly eczematous, and is therefore placed here.

Eczematous inflammation is much modified in appearance when it is limited to any one of the appendages of the skin.

**Seborrheic eczema** is described under the seborrheides.

**Sweat eczema** may be seen in various forms. An inflammation of the sweat glands is seen in *malaria rubra* and *lichen tropicus*, and is not usually classed with eczema.

Many persons who suffer from habitual hyperidrosis are liable every summer to a vesicular eruption, which starts along the sides of the fingers as minute vesicles with slight inflammation round, and may be limited to those positions, or may, if more severe, extend with increased inflammation to the palms and other parts of the hand.

A general eruption,\* chiefly on the trunk and inner aspect of the limbs, sometimes follows a chill, whilst in an overheated or actually sweating condition. The eruption, then, consists of irregular groups of acuminate or rounded pin's-head papules, which, in parts, coalesce into irregular slightly scaly patches, so that, as a whole, the surface is more or less thickly covered with irregular scaly patches, with single and irregularly grouped papules interspersed. There is moderate itching, and if the patient is not subjected to alternations of temperature it is fairly amenable to treatment.

**Hair follicular eczema** is represented by the various papular forms of eczema already described as occurring on the extensor aspect of the limbs. Under the title of **Eczema folliculorum** Morris describes what he considers a special form characterized as follows:

"Each inflamed follicle stands out on the skin as an angry-looking red pimple (? papule); the capillaries round are con-

\* This form of eruption is depicted in Plate XI. of my Atlas. In the text it is suggested that it may be seborrheic, but I have since had strong clinical grounds for considering it to be a sweat eruption.

gested, and soon the skin is involved in the process. In this way red patches dotted with inflamed follicles are formed, which tend to spread by the extension of the inflammation from follicle to follicle. As a patch spreads at the edge it usually undergoes resolution in the center, desquamation takes place, and the redness fades into a yellowish stain. The itching is often most intense. The patches are generally multiple, and are scattered about the body, especially on the extensor surfaces of the arms and legs. The predilection for the extensor surfaces of the limbs is a distinctive feature, and the affection is obstinate, and recurrence is almost the rule. It is closely allied to sycosis, and there can be little doubt that it is of parasitic origin."

**Nervous Eczema.** Although disturbances of the nervous system often lead to an outbreak of eczema (*vide* Etiology and Pathology), I do not believe that there is anything special in its external characters which would enable it to be recognized apart from the history and other evidence of the nervous origin, and there is not, therefore, sufficient warrant for the creation of a special variety.

**Etiology.**—Men \* and women are alike subject to eczema from the first to the last week of existence. At the same time it is more common in the infantile period, and in the decades from twenty to thirty, and thirty to forty. Heredity, although often put forward, has but slight claims to be considered as a cause, beyond the fact that some skins are more vulnerable than others to external and internal noxious influences, and the parents will probably transmit a similar skin to their offspring.

The causes of eczema are external and internal. Some authors exclude all cases in which a local irritant has been the exciting cause. Thus Morris says, "Lesions due to such causes may be exactly like those of genuine eczema, but there is this fundamental difference: they appear in response to a visible cause, and begin to disappear when that cause ceases to operate." † As a general statement this is only true for the

\* Hebra gives the frequency of males to females as one to two, but this is probably due to special peculiarities in his clinic. For interesting statistics on eczema see Bulkley's monograph, chapter ii. In children, as I have shown, males predominate as five to three.

† Discussion on Eczema at Brit. Med. Assoc. in 1898, *Brit. Jour. Derm.* vol. x. (1898), p. 350.

strong irritants which will excite violent dermatitis in any skin exposed sufficiently long to their influence. Rhus toxicodendron, tartar emetic, croton oil, turpentine, etc., may be cited as examples. As a rule this dermatitis is readily recognizable as due to an irritant having characters very different from ordinary eczema. (*Vide* article Dermatitis.)

The weaker irritants require a predisposition on the part of the individual, either permanent, from the skin being especially sensitive, or temporary, from some want of general vigor from various causes, the same irritant being ineffective when the individual's vital powers are at their best.

In a very large proportion of such cases the eruption does not "begin to disappear when the cause ceases to operate," if that means when the irritant has been removed. On the contrary, the inflammation not only spreads beyond the part to which the irritant was applied, but an eruption, often symmetrical, may start up in quite different parts of the body, and present the same appearance and run the same erratic course of the "true eczema which arises without obvious cause." I believe, therefore, that it is more logical and practical not to draw such arbitrary distinctions, and to consider all cases as eczema which correspond in their morphology and general behavior irrespective of the cause being tangible or intangible, external or internal.

The possible *external* causes are almost as numerous as the number of agents that will irritate the skin; it will thus be only necessary to give examples of different classes of irritants, as a complete list of them would be almost interminable. To some of these eczemas names have been most unnecessarily given, the irritant differing, but the eczema being much the same, except where the intensity of the irritation varies; E. solare, E. mercuriale, and E. sulphure are examples of these superfluous designations.

All irritants may be divided into chemical, thermal, and mechanical. The *chemical* irritants include a large number that are used medicinally, such as the whole class of counter-irritants, sulphur and mercurial inunction, dilute acids, dyes, soaps that contain an excess of alkali, etc. The *thermal* irritants are the direct rays of the sun (E. solare) and artificial heat, which often produces eczema in those exposed to it, such as stokers, blacksmiths, and cooks.

Cold has a strong influence, and eczema is more common and severe in winter than in summer. It is especially injurious when combined with wet, and when the parts exposed are allowed to dry spontaneously, as exemplified in washerwomen and barmaids. The nature of the fluid, the strong soda of the one and the beer of the other, often plays an important part, but the excessive use of water in the form of baths, as in hydropathy, mineral spring cures, etc., may also produce a sweat dermatitis or a veritable eczema.

Of cold, *per se*, the winter eczema of the ichthyotic may be specially mentioned, though it is by no means limited to them.

*Mechanical* irritants, such as handling dry powders, scratching in pruritic eruptions—parasitic or otherwise—the friction of articles of clothing, pressure, etc.

Many of these might be classed as “trade eczemas,” and are at first limited for the most part to the parts exposed to the irritant, though it may spread from that as a starting-point, and moreover the inflammation does not always subside at once after the removal of the irritation. Their nature was formerly misunderstood, and so we meet with such expressions as “baker’s, grocer’s, and bricklayer’s itch.” The bichromate of potash used by French polishers so much nowadays sometimes produces a recognizably “irritant dermatitis”; in others, one indistinguishable from eczema. In most of these “trade eczemas” a predisposition is generally required, as many members in the same trade escape evil consequences altogether.

Morbid secretions, such as diabetic urine, decomposing sweat, and various discharges from mucous membranes, vagina, nose, etc., may produce eczema either by acting as irritants or by the presence of pathogenic micro-organisms in them. Nasal discharges almost always contain pus cocci, which will probably set up their special lesions.

*Predisposing Causes.*—These are very important, sometimes indicating the most effectual line of treatment. They may be in the skin itself, congenital or acquired, or in the general organism, the so-called constitutional conditions. The skin itself may be anatomically defective, as in ichthyosis and its milder form of xerodermia, the last being especially important, as it is easily overlooked. The dry degenerative changes of the skin in old age also favor the development of eczema, which extends

widely, and is often very rebellious to treatment when it once gets a footing.

T. Fox thought that the eczematous skin in all persons was irritable and dry; that dryness favors the occurrence of eczema is well exemplified in the case of ichthyotic patients, but I would hesitate to say that the skin excretions are deficient in the majority of eczematous patients; indeed, eczema is common in association with hyperidrosis, and probably both in this and seborrhea, the excessive secretion, like the scratching in severely pruritic diseases, favors parasitic invasion.

There is one local condition that greatly favors the occurrence of eczema in the neighborhood, *e. g.*, varicose veins, whether of the leg or rectum. Any part being chronically congested is halfway towards inflammation; just as in emphysema the train is always laid for bronchitis, so it is with varicose veins and eczema—a slight local irritation or vital depression, and the inflammation is lighted up.

Besides the visible defects of the skin there are invisible defects which make some persons' skin more vulnerable to eczema than others, but there is little satisfaction to be gained from the theory of the older French authors \* who laid great stress upon what they called the dartrous diathesis, to which they refer eczema and several other cutaneous diseases, but these views now meet with but little acceptance in or out of France, and need not be discussed at any length.

With regard to the *internal* causes, there has been an immense amount of hypothesis, often reposing on a very slender foundation.

The eczema patient is seldom in a state of well-being at the time of the supervention of eczema. Instead of the clear, ruddy complexion, so often seen in psoriasis, a heavy expression, and pasty, or even earthy complexion, is the rule; the patient generally complains of something, sometimes only of "being out of sorts," has lost energy, or is no longer up to his work. One of the most common factors is an exhausted nervous system (the neurasthenia of American writers), whether from worry, anxiety, overwork, either of mind or body, or from disease; in-

\* See Bazin in "Affect. Cutan. Arthrit. et Dartreuses," 2d ed., p. 47 *et seq.* (Paris, 1868), and Hutchinson's "Lectures on Rare Diseases of the Skin."

deed, eczema is almost like a parasite in the way it seizes upon and flourishes on the weak or vitally depressed, independently of the cause of the depression.

Foremost among all internal disorders I would place derangement of the alimentary canal; the complex condition known as dyspepsia is very frequently present, and the bowels are very often disordered, either from constipation or from diarrhea or deficient bile. This may, however, be simply a concomitant, an acute eczema being often associated with pale motions, furred tongue, and urine loaded with lithates, and as the two often come on simultaneously, it is reasonable to suppose that there is a catarrh both of the alimentary canal and of the skin. Although only an hypothesis, it is highly probable that these conditions favor the development and absorption of toxins in and from the intestinal canal, which directly or indirectly excite the eczema.

Where lithemia, as described by Murchison, is frequently present, such as in patients of the gouty diathesis, there is little doubt that there is a causative relationship between it and eczema. Whilst fully admitting that the gouty state strongly predisposes to eczema, I believe that there is much exaggeration of the frequency of gouty eczema, and that when a middle-aged eczema patient is told that he is suffering from suppressed gout or perverted gout, it is too often only a refuge for the distressed diagnostician. Of course, if the view that all dyspepsia is an inchoate gouty state be accepted, my objection vanishes. How these various disorders produce the eczema is open to difference of opinion; Wilson and others included them under assimilative debility, Tilbury Fox regarded them as instances of retained excreta, which in the blood act as irritants to the tissues.

Put into the language of modern pathology, this would nearly coincide with the absorption of intestinal toxins into the blood, to which allusion has already been made. They may act directly or reflexly upon the nerve centers, and produce dilatation of the capillaries of the region affected. In infantile eczema irritation and consequent catarrh of the alimentary canal are even more common as a cause of eczema than in older people. The imperfect feeding of which infants are too often the victims is a fertile cause of the skin-troubles, and is much more often

the *fons et origo mali* than teething, which, for infantile diseases, often takes the place of "suppressed gout" of the middle-aged; at the same time I cannot go so far as Hebra, who denies that it has anything to do with the matter. I think it often aggravates a pre-existing eczema, and there are other grounds for believing that irritation of the fifth nerve will produce eczema, such as Cavafy's \* case, in which eczema followed neuralgia of the second branch of the fifth, and was limited to its area of distribution. In an infant of nine months what appeared to be a scaly eczema came out suddenly after an attack of sickness and diarrhea and formed streaks one-eighth of an inch above and broadening out to half an inch at the wrist in the distribution of the circumflex and radial cutaneous branches. It had not altered two months after its first appearance.† Such cases as these are rare.

The distribution is more frequently in areas governed by common vaso-motor centers than in those of single nerves. The most familiar example is that of the bust and arms, but I have seen it persistently limited to the malar eminences in several successive attacks.

Rickets also is often put forward as a cause of eczema; I believe it is so indirectly in some cases, especially as catarrh of the gastro-intestinal tract is seldom absent in rickets, while the child's powers are much depressed; how far they are dependent upon each other, or upon a common cause, is open to discussion. With regard to the "strumous state," it is an outcome of lowered vitality, and as such is a predisposing cause of eczema; it exercises a modifying influence also upon the kind of inflammation, favoring suppuration, so that it is a predisposing cause of pustular eczema. The special form of eczema in scrofulous patients has already been described (p. 192).

Another class of cases in which eczema appears to be a reflex neurosis is in uterine disorders, which even Hebra admits as an

\* *Brit. Med. Jour.*, July 24, 1880; also Montfort and Mirallié's case of eczema in the domain of an ulnar nerve with neuritis and simultaneous cure of the nerve and skin inflammation, *Annales de Derm.*, etc., vol. viii. (1897), p. 1264. A case of eczema in the course of the small sciatic and short saphenous nerves is recorded by Shearer, *Glas. Med. Jour.*, February, 1885, with photograph, but I am not quite sure from the description that it was really an eczema.

† Private case book G., p. 96.

important factor. He and others have known women in whom eczema of the hands was always present in pregnancy, and constituted the earliest reliable sign. The presence of uterine tumors, the climacteric period, the termination of lactation, congestion and subinvolution of the uterus, etc., are further examples of uterine derangements as causes of eczema, which is also not infrequent in chlorotic girls. Reflex neurotic eczema from disease of other viscera is probable, but seldom demonstrable.

Bulkley considers eczema and asthma to be so frequently associated or alternating that he regards asthma, in many cases, as a sort of eczema of the pulmonary mucous membranes. I cannot say that I have found the association frequently, but that a chill will excite a simultaneous inflammation of the skin and mucous membranes is readily intelligible.

Bulkley \* is also very strong on disturbances of the nervous system producing what he calls "neurotic eczema," which "affects both sexes and at all ages from the cradle to the grave." He considers dentition and puberty and nerve strain in childhood and adult life as important etiological nerve factors. Leloir and others have adduced striking cases in which nerve shocks or prolonged nervous strain of anxiety or worry have been the immediate antecedents of eczema, often very widely spread, and all dermatologists can confirm this from their own experience. How it produces eczema is not so clear. To admit the facts observed in these cases, but to say that the disease is neurotic dermatitis, and not true eczema, is only juggling with words and begging the question.

**Renal Disease.** Liveing considers glycosuria and slight albuminuria to be common in chronic eczema of people past middle age. Granular kidney and renal inadequacy I have certainly found in a fair number, but sugar in my experience is rare; however, the following case is an example: A man *æt.* sixty, who had been subject to eczema, but was in perfect health at the time when he bathed in the sea on a cold day, was unwell all the rest of the day, and on the following morning had spasmodic asthma and bronchitis, and in the evening eczema broke out all over

\* Bulkley, "Neurotic Eczema," *Jour. Amer. Med. Assoc.*, April 10, 1898, with many references.

the head and face. His motions were very pale, and he had a small quantity of sugar in the urine, without polyuria, but there was no evidence of gout. In a previous attack of general eczema this man had had white motions for some time.

I have also seen it in association with marked uremic symptoms. Bruhns \* cites several cases to prove the converse, viz., that eczema may produce acute nephritis.

When an eczema has once been excited it does not subside as soon as the cause is removed, and the disease will go on indefinitely unless judiciously and perseveringly treated. It is no uncommon history to find a child in his teens who has had eczema more or less from early infancy, and in whom no defect in health to account for it can be discovered.

In adults also we meet with cases where, after correcting every defect discoverable, and every function appears to be duly performed, yet the eczema persists. Often the disease appears to be subsiding under local and other treatment, when the end of the free interval arises, and all one's labor is undone in a single night. That such cases are frequently dependent on a nervous defect, the results of a treatment to be presently discussed strongly corroborate. Hebra placed "faulty innervation," without suggesting its nature, in the highest position as a cause of eczema; this I should indorse, and suggest that the chief factor is a reflex irritation of the nervous centers, producing a dilatation of the capillaries in different regions of the skin, possibly through an inhibitory influence over the vaso-motor center. In some cases this irritation is from a distant organ, like the intestinal canal or uterus; in others it is from the skin itself. All these internal causes Unna disposes of by saying that their presence makes the skin a better nutritive basis for the hypothetical parasite of eczema, but this makes it equally desirable to remove them if possible.

*Pathology.*—Eczema is a catarrhal inflammation of the skin, analogous to that of mucous membranes. So far all are agreed, but as to the pathogenetic factor or factors the diversity of opinion is as great as ever. The principal theories are the nervous, the parasitic, and the toxic.

That, when not due to a local irritant, it is a tropho-neurosis, either central or peripheral, has been advocated by Hebra, Til-

\* Bruhns, *Berlin. klin. Wochenschrift*, 1895, p. 606.

bury Fox, Schwimmer, Leloir, Bulkley, etc., and Marcacci \* in a fatal case of universal eczema found changes in the sympathetic. That the nervous system plays an important part in the production of eczema has already been shown under Etiology, but whether it is primary or secondary is open to dispute. If the latter, it might be an important or even necessary factor without invalidating other primary pathogenetic theories.

Unna holds that eczema is a parasitic disease due to the morococcus, as he calls an organism consisting of clusters of cocci which he has found in the epidermis; and he explains the dermal inflammation set up by this epidermal parasite by invoking an irritating toxin derived from the morococcal activity. Unna claims to have produced eczema from morococcus cultures, but, according to Török, it was not a true eczema, but an impetigo. This morococcus has also been found in the vesicles of scabies, in the scales of psoriasis, etc., and it becomes a question whether its widespread existence does not argue more in favor of its banality than of its pathogenic importance. Experimental proof of a toxin from it is wanting.

Leredde is a strong advocate of parasitism in eczema, but imposes reserves in accepting the morococcus as the agent. He thinks that the similarity of effect from such a multiplicity of causes postulates a parasite, but admits that it is inoperative in a normal skin. According to him, local irritants, the invasion of the *acarus scabiei*, scratching, etc., are only opening doors from the outside to the parasite, and favoring its deeper invasion; gastric fermentations, altered secretions, gouty conditions, etc., are only favoring influences from within. This is convenient at all events, for this parasitic theory is not inconsistent with all the other hypothetic factors having a share in the production of the eczema, only reserving the leading rôle for itself, although it is powerless without other factors. The success of antiseptic local treatment is adduced as a proof of this hypothesis.

Whilst fully admitting the importance of antisepticism in eczema, and indeed in all inflammations of the skin where the epidermis is disturbed, it may be explained by the secondary invasion of an inflamed surface, either by organisms from without or by previously present organisms which are harmless in a nor-

\* *Giornale italiano delle Malattie ven. e d. pelle*, June number, 1878.

mal skin. Such, we know, are staphylococcus aureus and its congeners, and streptococcus, and all modern authors are agreed that there is secondary invasion by one or more of these organisms, and that their presence has to be reckoned with, both as modifying the clinical aspect and in the indications for local treatment.

At the International Medical Congress in Paris, in 1900, the parasitism of eczema was one of the subjects of discussion, and those who took part in it were almost unanimously against Unna's view. They all agreed that the fluid from the unruptured primary vesicles was amicrobic, and they were all equally unanimously in favor of secondary infection, chiefly by the staphylococcus aureus and the streptococcus. According to Sabouraud, the staphylococcus transforms the eczema vesicle into a pustule, and after proliferating in the vesicle it can then excite in the neighborhood directly, *i. e.*, without primary eczema vesicles, numerous miliary pustules. When the streptococcus invades an eczema it produces, between the primary vesicles, superficial phlyctenulæ below the horny layers which may coalesce and produce extensive superficial erosions with exudation which dries into their yellowish crusts. In uninfected but ruptured eczema vesicles the corresponding depressions are discrete and exude in droplets, but when streptococcal infection occurs the whole surface oozes uniformly. It is to be hoped that these precise differences will be confirmed by other observers. Sabouraud also states that the "morococcus" belongs to the staphylococcus group. The flask bacillus and a small special bacillus are concerned in the seborrheic forms of dermatitis.

The hypothesis of parasites being the sole cause of eczema (the so-called seborrheic eczema excepted) creates, in my opinion, more difficulties than it solves; for amongst many other objections, we must suppose that the parasite is absorbed into the circulation and germinates as in the exanthemata, or how else are we to account for the frequent sudden outbreak of eczema with a symmetrical distribution, in definite vaso-motor regions, such as those of the xeroderma pigmentosa area, the acne rosacea area, etc.; sometimes supervening on a dermatitis from a local irritant? Toxin absorption from the original source of inflammation is the only other plausible hypothesis.

My own view is this: that, while a limited number of cases of local dermatitis indistinguishable from eczemas are parasitic, in most the dermatitis, however caused, only opens the door to parasites whose presence keeps up local irritation, so that their destruction is an important step in the restoration of the skin *ad integrum*. Seborrheic dermatitis is on a different footing, and I admit its local and parasitic nature unreservedly. That eczematous inflammation becomes pustular from cocci I have already stated, and that partial or complete cure results from their destruction. It will thus be seen that in practice there is agreement, while in theory there are differences.

That toxins may and do cause eczema in many cases is more than probable, and their most frequent source is the alimentary canal (auto-toxins), *i. e.*, such a theory accounts for most of the clinical symptoms, and they may act by damaging the nutrition of the tissues directly or indirectly from the toxic effect on the nerves of the affected area. At the same time it is as difficult to afford definite proof of this theory as of any other. Believers in the parasitic theory would say that toxins of local manufacture, *i. e.*, at the site of the dermatitis, play an important part, and indeed, for the morococcus such a theory is essential to make it viable as a pathogenic agent.

There remains the possibility that eczema is due to different pathogenetic agents, but that they all act through the nervous system.

To show the difficulties of each theory, the following example may be taken. A man given to alcoholic excess sustained a contusion of the left leg, to which he applied a weak solution of arnica. A smart dermatitis was excited on the leg, which looked like a diffuse, slightly discharging, and scaly eczema, and nothing in its appearance suggested a local irritant. Three days after the leg inflamed, the orbits swelled up considerably, and the skin there was bright red. The back of the forearms and hands presented fine acuminate papules on their extensor aspect, all quite symmetrical.

On the parasitic theory it must be supposed that the irritant brought into pathogenic activity an organism already in the skin, and that this was multiplied and absorbed into the systemic circulation, whence it was carried to the symmetrically inflamed parts, or that at the part irritated the parasite

(? morococcus) produced a toxin which acted on the common vaso-motor center for the face and back of the forearms and hands.

On the nervous theory it would be sufficient to suppose that a local irritant produced, by reflex action on the vaso-motor center above mentioned, the symmetrical inflammation described. On the auto-toxin theory the local irritant may have acted by leading to either the production or absorption of a toxin from the alimentary canal by a reflex nerve action, just as chills of the surface appear to produce similar results in some cases.

In all these theories the predisposition or vulnerability from alcoholic excess must be taken into account, weakening the resistance of the tissues of skin or nerve, or producing gastrointestinal catarrh, and fermentative changes favoring toxin production, according to the theoretic view taken. This example shows how each theory requires a plentiful amount of supposition to get over its deficiencies, and also that at present we are far from a perfect and provable working theory.

**Anatomy.**—This has been investigated by Simon, Hebra, Wedl, Rindfleisch, Kaposi, Neumann, Biesiadecki, Robinson of New York, Leloir and Vidal, Unna, and myself. In acute eczema the changes are chiefly and primarily in the papillary layer, afterwards in the epidermis, and, if of sufficient duration, the deep portion of the corium may be involved.

In papular eczema the inflammation is in circumscribed portions of the skin, and Robinson says is primarily confined to the follicles, especially the hair follicles, while in the other forms it is more or less diffuse. Unna makes practically no distinction between eczema and seborrheic dermatitis, and lays great stress on the changes in the epidermic cells, which are swollen by imbibition of fluid (inflammatory edema), and their normal functions otherwise interfered with. Thus the upper cells of the prickle layer do not undergo normal keratinization (*parakeratosis*), but remain moist in their interior, adhere into masses, and form scales in the subacute and chronic forms. In the more acute forms the upper layers are lifted off by the fluid beneath before many changes have occurred. The deeper prickle cells proliferate as well as swell (*acanthosis*), with multiplication and diffusion of mitoses. When there is enough fluid to form vesicles the prickle cells themselves are elongated and almost thread-like, where the vesicles are large, and the vesicles are formed in the upper part of the rete or just beneath the horny layer, by the serum from the vessels making its way between the cells, and raising up the horny layer. Besides the serum they contain loose prickle cells, and some of these swell from imbibition, rupture, and impart the gummy character to the vesicular contents (Robinson). In the papular and

squamous forms the fluid exudation is slight; in the pustule it is abundant, and there is more cell emigration and proliferation, and therefore more infiltration of the corium and epidermis.

Spindle cells make their way into the rete, and form a close network between the cells, the meshes of which are filled with the prickle cells, this network extending sometimes right up to the horny layer.

The papillæ are swollen in all directions, the vessels dilated, the connective tissue corpuscles increased in size and number, and the fibrous bundles swollen by imbibition and compressed; these changes giving strong evidence of serous exudation.

**Chronic Eczema Rubrum.**—Robinson says the previously described changes in the corium are here more marked and deeper, and the lowest layers of the prickle cells are so altered that the lower border is badly defined from the corium, while the upper border is very irregular, from the changes in the horny layer, which is broken up into fragments consisting of nucleated cells adhering together. In chronic eczema squamosum there is proliferation and desquamation of the horny layer, while the deep part of the prickle layer is less altered, the corium and papillæ are infiltrated with round cells, the vessels are dilated, and, in short, there are all the usual changes of a less active inflammation.

The longer the duration of the process the more marked are the secondary changes, as exemplified in Figs. 11 and 12, representing *E. palmare*. The papillæ are so much larger; the cell infiltration of the corium is more marked and goes deeper, Neumann and myself having found it even between the fat cells; he also found, not only the blood, but even the lymph-vessel loops elongated and dilated at the end. This enlargement of the papillæ may go to a papillomatous extent, as before described in the clinical history; of this Robinson\* gives a figure. When the lymphatic flow is impeded the elephantiasic condition is induced. On the other hand, Rindfleisch† has described, in some cases, great development of connective tissue, obliteration of vessels, and flattening of papillæ.

**Diagnosis.**—The diagnosis of eczema may be very easy or very difficult. It is easy when any one of the four primary forms is in a typical condition; or given the presence, or the distinct history of the presence, of a continuous discharge which stains and stiffens linen, whether serous or purulent, and the diagnosis is made; for although there are a large number of eruptions in which there are vesicles or pustules, they either dry up without rupturing, or, with the exception of impetigo contagiosa, do so as soon as their contents have been evacuated. On the other hand, the absence of discharge does not neces-

\* Robinson, p. 318.

† Rindfleisch, "Path. Histology," *Syd. Soc. Trans.*, vol. i. p. 349.

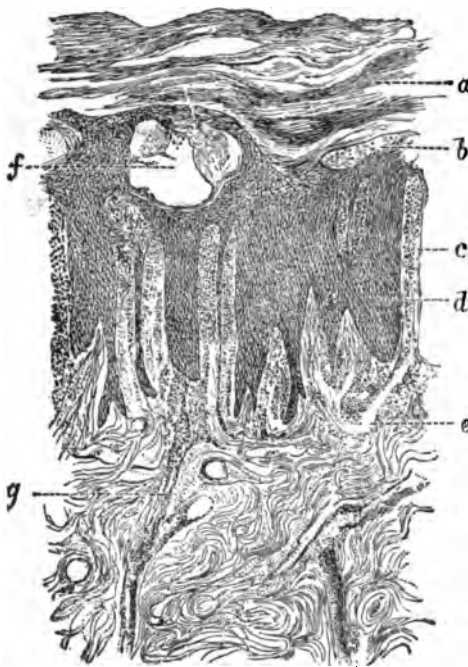


Fig. 13.

CHRONIC ECZEMA FROM THE CENTER OF THE PALM.  $\times 50$ .

Fig. 13.—Superficial portion.

*a.* Horny layer greatly thickened.

*b.* Commencing vesicle.

*c.* Round cell effusion into papilla.

*d.* Enormously thickened prickly cell layer. The inter-papillary portions are very much elongated, producing corresponding enlargement of the papillæ as at *c*.

*e.* Dilated papillary vessels.

*f.* Vesicle in the rete, in the course of a sweat duct.

*g.* Sweat duct with round cell infiltration in and about it, throughout its course. In other parts the cell effusion is almost limited to the papillary layer.



Fig. 14.

Fig. 14 —Deep portion corresponding with Fig. 13.  $\times 50$ .

*a.* Continuation of sweat duct *g* in Fig. 13.

*bb.* Sweat coil.

*cc.* Abundant cell effusion in and around sweat coil.

*d.* Fat with scanty cell effusion round the fat cells.

sarily imply the absence of eczema, for, like pleurisy, it may be with or without free effusion of serum.

The vesicular form of eczema may be mistaken for scabies, herpes, and, when universal and weeping, for pemphigus foliaceus; the pustular form, for impetigo contagiosa, tinea favosa of the scalp, sycosis barbæ, and pustular syphilis of the scalp; the papular, for lichen acuminatus, papular urticaria, and papular syphilids; the erythematous, for *E. simplex* and erysipelas; *E. rubrum* of the legs may also be mistaken for erysipelas; *E. squamosum*, for psoriasis and tinea circinata, and when on the palm, for the palmar syphilid.

The diagnosis of the eczemaform seborrheide from eczema is given with the Seborrheides.

*Scabies v. Eczema.*—These two diseases very closely resemble each other, and often give rise to great difficulty in diagnosis; and this is not surprising, since nearly all the lesions of scabies are individually of an eczematous character.

Both itch much at night and both have vesicles, pustules, crusts, and scales. Where there are well-marked burrows from which an acarus can be picked out, or where there is evidence of contagion, there is of course no difficulty, but in an ill-marked case, especially when thrown off one's guard by the patient being obviously a clean person, or of the well-to-do classes, mistakes often arise.

While the individual lesions of the two diseases, with the exception of the acarian burrows, resemble each other, the general picture is very different, and if the rule of seeing the whole of the eruption were more generally followed, as it can be in males, mistakes would seldom occur. The general picture is especially useful where the burrows have not been developed; or where they have been destroyed or obscured by vigorous scratching; or from the nature of the employment, as in bricklayers, washerwomen, etc., the two points which afford most assistance are the *positions* and *scattered* character of the eruption. Scabies particularly affects the hands, especially between the fingers (an eczema position also), the flexure of the wrists, the axillæ, the pubic region, especially the penis, and inner sides of the thighs in adults, while in infants the buttocks, feet, and hands are the favorable positions. If an eruption is scattered irregularly in any of these positions, it is of itself a strong pre-

sumption in favor of scabies. Eczema also comes in these situations, but the lesions are always more or less grouped or patchy. A pustular eruption on the hands or feet of an infant is nine times out of ten due to scabies.

Where the evidence for either is finely balanced, the effect of the treatment for scabies will decide the matter in a week.

*Pustular Syphilids* of the scalp are often mistaken for pustular eczema. There is here superficial ulceration; and the loss of substance, either past or present (and scars should always be looked for), is decisive. The crusts may require to be removed before a diagnosis can be made, and this is always the safest course to pursue. The offensive odor of the pustular syphilid should excite suspicion, and further, the lesions are generally more circumscribed than those of eczema.

*Coccogenic Sycosis Barbae* bears a close resemblance to the later stage of eczema of the beard and whiskers. At the commencement, in eczema, there is inflammation, and perhaps vesicles, between the hairs, and the eruption nearly always extends to the neighboring hairless situations; but as time goes on this may get well before the hairy part, and the eczema clearing up between the hairs, there is only a pustular folliculitis left, hardly distinguishable from sycosis. At a later stage the two conditions are identical, the whole skin being infiltrated, of a deep red color, with crops of follicular pustules from time to time, and no doubt directly dependent on pus cocci. The treatment is also identical. Often, however, the eczema inflammation can be shown to be more superficial at first. On extracting the hairs some of them will be found to be infiltrated at the root, only a short distance down, while in sycosis the whole root-sheath is always swollen.

*Tinea Favosa* of the scalp is likely to be mistaken for eczema, only when its possible existence is forgotten for the moment. The crusts are a more decided yellow, and often powdery; some at least will be cup-shaped, and there may be atrophic scarring. If there is still doubt, the microscope would be decisive as to the presence of a fungus, though culture might be necessary to prove the exact nature of it.

*Herpes Zoster* will seldom give much trouble; the definite arrangement of the patches in the course of a nerve will be quite sufficient; also the vesicles being much larger, except at

the commencement, and the way in which they dry up without discharging, or at least without continuous discharge, constitute distinguishing features. This last symptom is a distinction between eczema and the other forms of herpes, viz., *H. facialis* and *genitalis*, which are more like eczema than zoster is, the vesicles of *H. genitalis* being very small. Their position, the circumstances under which they occur, and their short course, will be sufficient to prevent error.

*Pemphigus Foliaceus* is very like a general weeping eczema; the diagnosis is given under *Pemphigus*.

*Impetigo Contagiosa*, when due to *pediculi capitis*, its most common cause, is very like pustular eczema of the scalp. The localization is an important point; the eruption always predominates in the occipital region; at the most, a few isolated scabbed spots exist in the other parts of the head; eczema is scarcely ever limited in this way, even in isolated spots; nits would also be discoverable, and the effect of treatment would be conclusive; *impetigo contagiosa* is curable in a week or two, while eczema nearly always takes longer. When *impetigo contagiosa* is on the face, the fact that there are always isolated lesions away from the main patch is sufficient.

*Lichen Acuminatus* and *Lichen Planus*.—See those diseases.

*Papular Urticaria*.—Eczema lesions are not infrequently mixed up with those of urticaria. In the papular form of urticaria the lesions are never grouped, as in eczema; they are rather larger, not so hyperemic, and at least, the history of wheals is obtainable. When the scab-topped papules are chiefly distributed on the loins of a child, wheals should be always inquired for.

*Large Follicular Syphilid* v. *Eczema Papulosum*.—This syphilid always occurs in the early part of the secondary period,—that is, within about six months of infection,—and other syphilitic lesions are nearly always present. In the large follicular syphilid the papules are in groups of three to seven, which is very characteristic; they are also larger, a browner red, and do not itch.

*Erythema Simplex* is not easily mistaken for eczema. The eruption is not in the least scaly, seldom itches, there is no inflammatory edema, and all the other characters of eczema are wanting.

*Erysipelas* v. *E. Erythematosum*.—When the face is affected the latter is often mistaken for erysipelas on account of the redness and edema, but there are no constitutional symptoms as in erysipelas; it does not begin at a special part like the orbit, its borders are never defined, it is usually bilateral, the surface is rough from the first, while in erysipelas it is shining, smooth, and tender, and desquamation only appears after the departure of the inflammation. In *E. rubrum* of the legs there is always profuse weeping, and the chronic course of the eruption ought to prevent mistakes.

*Psoriasis* v. *Eczema*.—It is only when eczema is in dry, scaly, circumscribed patches, or when psoriasis is unusually hyperemic, that mistakes are liable to occur. The diagnosis is given under Psoriasis.

*Tinea Circinata*.—No mistake can occur when the tinea is present in its typical form of discrete circles made up of papules with a clear center; but when there is a uniformly scaly patch, irregular in outline, it may be impossible, except with the microscope, to distinguish between them. Often, however, there is ringworm in the scalp, or a more typical patch elsewhere, or a history of contagion to help out the diagnosis. Moreover, eczema is generally symmetrical to some extent, and the border less defined. A sharply defined border to a solitary scaly patch should excite suspicion of its not being eczema.

*Prognosis*.—Eczema more frequently runs a chronic than an acute course, and, if left to itself, may persist indefinitely. It is always amenable to a persevering, judicious treatment, though when there are extensive secondary changes these may not always be removable.

The elements for prognosis to be considered are: how far the eczema depends on some removable or irremovable defect in the general health, or other condition, *e. g.*, varicose veins; the form of the disease; the mode of progress; the history of previous attacks, if any; the duration and intensity of the inflammation; the position of the eruption; and the amount and character of the secondary changes.

Thus, a gouty eczema in an old person, or where elimination is defective, as in granular kidney, is extremely likely to recur, or where there is a chronic cause of worry or anxiety, or other points in the external conditions are bad, the prognosis is un-

favorable for the removal of the eruption. Papular is usually more obstinate than acute vesicular eczema. When every few days an outbreak occurs without apparent cause, when the eruption is of long standing, and elephantiasis, papillary hypertrophy, or great induration has set in, or when it is on the scrotum, hairy parts of the face, or palms, the prognosis is more or less unfavorable, at least for a time, though there are few indeed which do not yield at last. In general eczema a few cases go on to pityriasis rubra, when the prognosis will be the same as for that disease.

*Treatment.*—The treatment of eczema is very important, and its mastery will give the key to the treatment of three-fourths of the inflammatory diseases of the skin. The first point to investigate in all cases is the cause of the eczema; *e. g.*, if it is limited to the hands, a local cause, especially such as would be connected with the occupation of the patient, would naturally suggest itself. Failing this, investigation should be made into the general health, the habits, and surroundings of the patient, and persevering attempts made to remove, modify, or neutralize any injurious influences, the great aim being to remove or guard against depressing conditions and all sources of irritation, whether internal or external. With regard to these points, it is impossible to do more than give a few hints as to the lines on which to proceed, and which are likely to be beneficial in the majority of cases. There are no specifics for eczema, and as regards general treatment, the soundest practitioner for disease in all forms will be the most successful. In all cases the condition of the alimentary canal must meet with our first attention. Of the derangements there, constipation is the most common and most injurious, and success can scarcely be hoped for unless that is overcome; when chronic, but slight, the compound sulphur lozenges, or if obstinate, the aloes, nux vomica, and belladonna pill (Pills, F. 1) taken for a long period, are most useful, coupled with all the well-known rules for meeting that condition. As temporary adjuncts, the compound liquorice powder, or the liquid extract of cascara sagrada, may be given, while the aperient mineral waters, such as Carlsbad, Hunyadi Janos, Æsculap, Apenta, Friedrichshall, Püllna, etc., are often required two or three times a week; these waters are especially useful where there is passive congestion

of the liver. For infants, equal parts of the infusion of gentian and senna, a dram to be taken three times a day, to which, in obstinate cases, two or three drops of tincture of belladonna and tincture of podophyllin may be added, is a good formula, but it is disagreeable for a child to take. Liquid extract of cascara  $\mathfrak{m}\text{ij}$  to  $\mathfrak{m}\text{v}$ , tincture of belladonna  $\mathfrak{m}\text{ij}$ , and compound infusion of orange  $\mathfrak{z}\text{ij}$ , is better. Where there is dyspepsia, alkalies and bitters, bicarbonate of soda for the majority and of potash for the gouty, is the usual treatment required. Bismuth is useful with pyrosis or irritable tongue, and a small dose of strychnia or tincture of nux vomica in flatulent or atonic dyspepia.

In children, in whom catarrh of the bowels is so common, sodæ bicarb. gr. 5, sp. chloroform,  $\mathfrak{m}\text{j}$ , aquæ anethi dil.  $\mathfrak{z}\text{j}$ , for a child a year old, answers well in many cases where the motions are loose, offensive, and slimy, and frequently a grain of hydrarg. c. cret. three times a week may supplement the mixture. Of course these are only given as examples of treatment for the common run of cases. For most patients the diet should be carefully regulated; food in which sugar is a feature and all fermentable articles of diet should be prohibited, sugar should be taken in very moderate quantities or not at all, especially with hot fluids, highly seasoned and made dishes avoided, and a dietary laid down, plain and nutritious, but with sufficient variety not to pall upon the appetite. Salt meats are only contra-indicated because, as a rule, they are difficult of digestion and less nutritious, weight for weight, than fresh meat. The salt itself is not injurious in moderate quantity.

Alcohol must always be taken sparingly, as, except in very moderate quantities, it dilates the vessels of the skin, and therefore increases the blood in the too congested skin, and aggravates the itching; beer and the stronger wines are seldom admissible; sound clarets, hocks, and plain spirits freely diluted are the least objectionable, but in a large number of cases alcohol is better avoided altogether. In gouty cases the regimen and medicinal treatment for that condition must be adopted, taking care to insure a reduction of the amount of nitrogenous food on the one hand, and active exercise and means for promoting increased oxidation on the other. A course of alkalies, with saline aperients occasionally, is what is

usually indicated; but colchicum need only be given when there is high pulse tension and other indications of a gouty outbreak. For the want of tone and general debility, so often exhibited by eczema patients, the mineral acids and nux vomica, or quinine, or where there is anemia, iron, with plenty of outdoor exercise, short of fatigue, are the measures generally demanded, and cod-liver oil is often highly beneficial.

In children, especially if rickety or strumous, if the bowels and diet have been regulated, iron, such as the syrup of the iodid, the ammonio-citrate, or Parrish's food, with cod-liver oil and general hygiene, are the means best suited to combat such conditions. In all obstinate cases in adults the urine should be examined for albumin, sugar, and an excess of lithates or phosphates; indeed, it should be done as a matter of routine. In short, until every function is duly performed and the patient's health has attained to the highest point of which his organization and circumstances render him capable, the practitioner should not rest satisfied.

Speaking generally, in an acute case seen early, saline aperients are good treatment at first, and later on tonics suited to the patient's special conditions; while in cases of long standing diuretics take a high place in relieving the skin troubles.

But there are cases in which no particular departure from health can be discovered, or where such departure has been rectified, and yet the eczema remains uncured, owing to fresh attacks at short intervals; and then it is usual to try empirical remedies. Arsenic has a high reputation in this connection; indeed, it is but too common a practice to resort to it whenever there is the least hitch in the progress of the case, but in my experience it is a most disappointing drug in eczema. I do not doubt that a certain number of cases get well under arsenic, when it is combined with local treatment, but whether as *post* or *propter hoc*, I am not prepared to say; but it has nearly always failed in the only cases in which I have wanted its assistance, viz., those in which, what I venture to call the rational treatment has previously been unsuccessful, probably not more than three per cent. in all cases.

Hutchinson and Malcolm Morris strongly advocate vinum antim. tart. in small doses, about  $\mathfrak{m}\nu$  three times a day. It is an old treatment revived, and I have certainly found it service-

able, but in a more limited number of cases than they appear to have done. It acts most favorably in acute cases, in a fairly robust individual; but if given to a debilitated subject, or in an otherwise unsuitable case, it will not only aggravate the eczema already present, but will excite it in fresh places. This I have seen several times, and regard it, therefore, as a drug powerful for good or evil, and consequently to be used only in carefully selected cases. Hutchinson, however, uses it freely at all ages, and claims signal success for it in a large proportion of cases. It appears to suit a good many cases of infantile eczema in drop doses three times a day.

Another drug which I have found beneficial in uncomplicated cases, where there is no irritation of the alimentary canal or urinary organs, is spirit of turpentine. In many obstinate cases it has acted most satisfactorily, even when no local treatment has been employed. There is rather a prejudice against it, on account of its irritating effect in some cases on the urinary passages; but if given with proper precautions such irritation will be rarely seen, and will never be very great. It should be made into an emulsion with mucilage, and given three times a day, after meals. The dose at first should not exceed ten minims, and the last dose should be taken not later than 6 P. M., as discomfort on micturition in the morning sometimes follows a late dose. The quantity of urine passed is often diminished at first, with copious deposit of lithates; therefore diluents, such as barley water, should be drunk freely, not less than a quart a day. This is very important, and the medicine should not be commenced until the barley water is ready. Unless the patient is very intolerant, which is not often the case, the dose may be increased by five minims at a time up to twenty or thirty minims, and but few complain seriously of the taste, which can be masked by various flavoring agents, notably essence of lemon.

But there are a few cases where the Pharmacopeia has been ransacked in vain, for every few days exacerbations set in, and undo over and over again the good effect of the local treatment. In such cases I endeavored to get at the vaso-motor centers of the part by applying counter-irritation over them. This proved more successful than I had expected, and the result was too immediate to doubt the connection between cause and effect.

In the upper half of the body it was used to the nape of the neck; in the lower, over the lumbar enlargement, *i. e.*, the last dorsal and first lumbar vertebræ. Sometimes dry heat, in others a strip of mustard leaf, was used, or the liquor epispasticus was painted on. The application should be made as soon as the patient has warning, by the increased heat and irritation, that an exacerbation is impending. The nocturnal exacerbations were either stopped or greatly mitigated, and by repetition, in some cases, a complete cure was effected, after the eruption had lasted for years. No eczema was ever excited in the neighborhood of the counter-irritant, even after severe blistering. The relief of the itching was so entire and immediate that the patient, after the first time, welcomed the repetition of the treatment. Icebags to the spine have also been suggested for these cases.

*Local Treatment.*—This is as important as the general treatment. Indeed, Hebra and the Vienna school place it first, and rely almost exclusively upon it. The judicious combination of the two finds most favor in English eyes, and appears to be at once the most rational and rapidly efficacious.

The number of local remedies and plans of treatment for eczema is legion, and testifies to the troublesome and obstinate character of the complaint in many instances. I propose to limit myself either to those methods of treatment which have been most successful in my experience, or on which many authors of repute have placed their *imprimatur*.

Except where the inflammation has been excited by parasites, the local treatment is independent of the cause. The points to consider are the character and intensity of the inflammation, its position, and the secondary changes which have ensued.

There are certain things which are always to be avoided. Eczema should never be washed with plain water, as most waters contain lime, which is irritating whenever there is any active inflammation, and will sometimes, if persisted in, render success impossible. Distilled water, pure water with scarcely any salts, such as that of Glasgow and Dublin, carefully collected rain water, are less injurious, also water which has been boiled and stood long enough to deposit the lime may be sometimes used with impunity.

The inflamed skin should always be protected from the air, and when it is on the face the patient should not go out in an east or northeast wind in this country, and should not be sent to the seaside as long as the eczema is out anywhere or has been out very recently. There are some exceptions to this. Thus, in strumous subjects, or some others who require bracing very much, the benefit to the general health more than counterbalances the local injurious effect, though even such patients would do better in an inland bracing climate.

*The first positive procedure* in all cases should be to remove the crusts and scales completely, so that the remedy may be brought into absolute contact with the diseased surface. This may be done in various ways. The most common plan is to poultice the part for three or four hours. It answers well enough with care, but is so often overdone, and is then so injurious, that it is safer to avoid it altogether except in the form of the boric acid and starch poultice (F. Poultices), which Jamieson employs extensively. Plain almond or olive oil applied constantly on strips of flannel, until the crusts and scales can be softened enough to enable them to be readily detached, is the plan I prefer. Another good plan is to soak them off with decoction of marshmallow or thin gruel, to which 5ij of bicarbonate of soda to a quart are added. Some recommend india-rubber envelopes, but the parts must then, immediately after their removal, be wrapped in ointment, or the skin will crack as it dries. Where the crusts or scales are moderate in amount, the ointment selected may be applied at once, removing fresh scales night and morning, before the fresh dressing. When all the crusts are removed the inflamed part is ready for the special medication.

*The medicaments* may be prescribed in the form of desiccant powders, lotions, liniments, pastes (hard and soft), and ointments. The drugs employed have soothing, astringent, antiseptic, stimulating, caustic, or keratolytic properties, and in selecting the remedy deemed appropriate the points to consider are the character and intensity of the inflammation, especially as to the quantity or absence of discharge, and the position and secondary changes which have ensued, for, except where the inflammation is excited by parasites, the local treatment is independent of the cause. Speaking generally, in acute

or subacute eczema (as regards degree, not duration) the applications should be continuous, while in the drier and more chronic forms they are intermittent. The objects are to secure equality of temperature and protection from the air and the injurious organisms it may contain, *i. e.*, to keep the part aseptic; to constrict the dilated vessels and allow the excoriated part to heal under the dressing; or, in the chronic forms, to remove the surface layers of thickened epidermis and sterilize the layers beneath. The treatment for special positions will be considered separately. In all cases, when practicable, the patient's convenience should be consulted, as he will often otherwise not carry out his instructions faithfully; besides, for the poor to give up working is often to give up eating.

As a rule, lotions, unless they require to be applied constantly, are more convenient than ointments. Lotions or dusting powders are generally preferable where the discharge is very profuse, ointments may be used where the discharge is moderate, soft pastes where the discharge is slight, and hard pastes are suitable for dry areas. When a large moist surface has to be continuously enveloped, liniments find their place (see also p. 87).

As long as there is great hyperemia and discharge, soothing remedies are safer, more grateful to the patient, never do harm, and are generally the most efficacious; non-irritating antiseptics may be usefully added. They act, too, chiefly by protecting the part from the air, etc.

On the other hand, sometimes bolder measures, especially tar in some form, may effect a rapid cure in a comparatively acute case; but it is always risky in the early stage—may aggravate the inflammation, and thus destroy the patient's confidence at the commencement. It is a safe rule never to use strong remedies when the patient first comes under treatment, and until some knowledge of what his skin will bear has been gained. Stimulating, caustic, or keratolytic treatment is required in chronic, indolent, scaly patches, or where there is thickening and great itching.

The soothing remedies are mere emollients, such as boric acid and starch poultices, marshmallow decoction, or thin gruel with about 3ij of bicarbonate or baborate of soda to a quart.

These latter make good washes where cleansing is necessary. Other emollients are olive and almond oil, *ol. Deelinæ*, and other forms of heavy paraffin oils, or simple unguents. Those which are also astringents are various preparations of zinc, lead, bismuth, boric acid, alum, etc. Stimulating antiseptics are generally chosen from mercurial preparations, especially the ammoniated, the yellow oxid, the nitrate or oleate. Nitrate of silver, protargol, largin, resorcin, salicylic acid, ichthyol, thiol, etc., or tar or its derivatives in some form, are also used. Others less frequently employed will be alluded to presently. Lotions, such as calamin and bismuth, which contain suspended powders, are dabbed on and allowed to dry, leaving a powdery deposit which protects the inflamed skin. They are chiefly adapted for parts exposed to the air, and where the discharge is trifling or absent. They should not be used on the scalp, as they clog up the hair in a very disagreeable manner. In recurrent papular eczema they give great relief to the pruritus, and if used early and diligently, will cut short the attack in many cases. Soothing astringent lotions, such as the liquor or the glycerin of the subacetate or lactate of lead lotions, act best when continuously applied, so that the part may be rested and protected.

Strong lotions, such as those of tar, nitrate of silver, permanganate of potash, etc., require painting on once, twice, or thrice a day, according to their strength and the object in view.

Soothing ointments and liniments should be applied thickly spread on lint or linen in strips, and then bandaged over, so that they may be closely and continuously applied to the part, and the ointment should be renewed about twice a day. Such applications merely smeared on twice a day are useless. Stimulating antiseptic ointments, unless very weak, seldom require continuous application. They may be used once or twice a day, according to the amount of stimulation required; but the part should always be protected from the air in the interval.

Soft pastes, such as Lassar's zinc, starch, and vaselin, with one or two per cent. salicylic acid, are very valuable in subacute eczema without much discharge, but the salicylic acid must sometimes be omitted for a time, and boric acid, gr. 10 to 20, substituted. Ihle's (Pastes, F. 4) is a similar paste, with

resorcin and some lanolin. These and similar applications should be spread thickly on the part, and then covered with a many-tailed bandage of nainsook, butter-cloth, or similar porous material. The firm pastes contain gelatin and glycerin and zinc as a basis. Unna's (Pastes, F. 1) is one of the best; he generally adds ichthyol two per cent. If that kind of addition is required I prefer thiol, as it has no smell. Other antiseptics may be added as required. These pastes suit dry surfaces, or where there is but little discharge. The gallipot or tin is placed in boiling water, and the melted paste painted on with a stiff brush and dabbed with cotton wool to prevent the surface sticking to the clothing, etc. Pick's and Elliot's tragacanth varnishes (Pastes, F. 6 and 7) may be used in similar cases. They are easier to apply, as there is no melting required; but, on the whole, I like the gelatin preparation best, as it does not make the part feel stiff.

Where the discharge is very profuse, desiccating powders may answer best; they should be freely dredged on several times a day, removing the old powder where it tends to cake from the discharge. Or they may be applied in Unna's bags (see p. 88). Except in the intertriginous eczema in the folds of fat people, I do not use powders very often where there is profuse discharge, as the caking of the discharge and the powder is much disliked by most patients. The powders most used are starch, kaolin, white peat, French chalk, lycopodium, etc., to which are added oxid of zinc, equal parts, the powdered oleate of zinc, one to three or four, finely ground boric acid, one to four or six; occasionally a little creasote may be beneficial, but it should be used with caution.

In a widely spread eczema, where the discharge is not too profuse, swathing the patient in bandages dipped in calamin liniment is often soothing, efficacious, and convenient. When the discharge is very great, lactate of lead, one to fifteen, or glycerin of the subacetate, one to ten, would probably be most suitable; they should be warmed slightly, lest a chill should be produced by applying a cold lotion over a very wide surface. Even when an ointment might be otherwise suitable, to spread so much in strips would require a special attendant. When the active stage of the inflammation has ceased in a part of moderate extent, and there are only scaliness and moderate

hyperemia, mercurial preparations often suit best. Gr. 10 up to 3j to the 3j of the ammoniated or yellow oxid, alone or in combination, are the strengths chiefly used; they are very useful for scaly patches and for the head. The nitrate is generally used in the proportion of 3j of the ointment to 3vij of lard or white vaselin; it may be used in the same cases as the other mercurial applications. It is often a good plan, when the activity of the inflammation has subsided, to add a small proportion of the mercurial to the soothing remedy and increase it gradually. The oleate of mercury is not often used stronger than one or two per cent. in localized patches. To avoid salivation, mercurial applications must not be applied continuously or over too large an area.

In pustular eczema, wherever situated, iodoform is the best remedy; 5 to 10 grains to an ounce of lard or any astringent ointment, such as zinc or lead, soon destroy the pus cocci, and alter the character of the eruption to a serous or dry eczema. Iodol or aristol act in a similar way, but are much less powerful and certain in their action, but I have found euophen useful; it is rather more irritating than iodoform, and one per cent. ointments are quite strong enough. Loretin is also useful, but rather irritating to some skins, even in one per cent. strength.

Tar, in some form, is one of the most efficacious remedies in eczema, if used at the right stage, a point which requires much experience, and it is best to try it over a small area and see how it suits, before extending its use to the entire surface, for it is almost as powerful for harm as it is for good if wrongly used. It is not indicated until the acute stage is passed, and although it may sometimes be used when there is still discharge, there is always some risk in such cases. In the form of liquor carbonis detergens with subacetate of lead Mr. Hutchinson uses it in nearly all cases, only varying its dilution.

It is in the squamous and papular forms that it acts best, relieving the intense irritation better than anything else. It may be used in a mild form, by adding a small quantity to the astringent ointments, *e. g.*, 3ss or 3j of the ung. picis, ℥iij to ℥x of ol. cadini or rusci, to 3j of the weaker ointment, or in a lotion such as liquor plumbi subacetatis, liquor carbonis detergens, et glycerini āā 3ij, aquam ad 3vij, or even weaker, applied three or four times a day, or carbolic acid ℥v to 3j of glycerin and rose

water; or it may be used in a more vigorous manner, as recommended by Hebra: the pure wood tar, or *ol. rusci* or *ol. cadini*, is to be brushed firmly into a patch after the complete removal of the scales, and reapplied until a good thick coat of it adheres to the skin, and it is then allowed to separate spontaneously; if there is still much redness and desquamation, or weeping points and much itching, the tar must be painted on again. This kind of treatment is best suited for indolent patches, and the tar must be brushed in vigorously. For my own part, instead of letting the tar separate spontaneously, I prefer to let it be soaked off immediately by immersion of the patient or the limb in warm water for an hour or two; in short, what is called a tar bath. Or, where there is only a small area, the tar may be soaked off with strips of flannel dipped in olive oil.

This is a most valuable treatment for chronic patches which have existed perhaps for many years. For scaly patches, without much infiltration, merely painting on a lotion of liquor carbonis detergens and liquor plumbi subacetatis in equal parts, or nitrate of silver, gr. 10 or gr. 15 to  $\mathfrak{z}\text{j}$  of nitrous ether, is often sufficient, and relieves the itching, though it makes the skin tingle for a minute or two. Hebra's formula for scaly eczema of the face is a good one; *acidi carbolici*  $\mathfrak{z}\text{ij}$ , *glycerini*, *etheris*  $\text{aa}$   $\mathfrak{z}\text{j}$ , *spirit. vini rect.*  $\mathfrak{z}\text{vj}$ ; but it must be used with caution at first until it is seen to suit, and, like all these strong preparations, should never be used until milder measures have been tried and the patient's confidence is gained.

Sulphur has a past reputation for eczema; locally, I rarely use it except as a weak ointment in *E. barbæ* in the later stage, and in seborrheic dermatitis. Thilandin,\* which contains three per cent. of sulphur, is an improved form of applying the drug, and is less irritating. Sulphur baths in the form of sulphid of potassium  $\mathfrak{z}\text{j}$  to  $\mathfrak{z}\text{iv}$  to thirty gallons are sometimes useful in the chronic folliculitis of the thighs, left sometimes after an acute eczema of those parts.

For similar patches, salicylic acid may be usefully employed to promote the removal of the thickened skin, and I have sometimes blistered the actual patch with great advantage. R.

\*Thilandin is obtained by the action of sulphur on lanolin, and forms yellowish-brown pomade of the consistence of lanolin. It was introduced to notice by E. Saalfeld.

Simon of Birmingham advocates pilocarpin injections 1-8 grain for these cases.

Sulphur springs, such as Harrogate, Strathpeffer, Aix-la-Chapelle, and Luchon, may be used in similar cases, and in chronic eczema generally; internally, they may be taken in gouty and rheumatic cases. As a rule, the local use of sulphur aggravates all except seborrheic and chronic eczema. The alkaline waters of Ems, Royat, and Vichy are more suitable than the sulphur springs, as a rule.

Hebra's soap treatment is very valuable for patches of old standing with great infiltration, such as are often seen about the legs and wrists. Have strips of lint or linen ready spread with oleate of zinc or lead ointment; then moisten a piece of flannel with water and spread a piece of soft soap as big as a walnut upon it, or dip it into the spiritus saponis alkalinus and rub firmly for some minutes, wetting the flannel with water occasionally, until all the scales are removed and the part is red with excoriated oozing points; then wash off the soap, dry the part rapidly, and immediately apply the ointment. The treatment may be repeated twice a day as long as there are any oozing red points left after the friction. In some cases the addition of oil of cade,  $\mathfrak{5j}$  to the  $\mathfrak{3j}$  of the soap liniment, is useful where there is much induration.

I have also found the treatment of Beissel of Aix-la-Chapelle for chronic local eczema a good one: The crusts are thoroughly soaked in oil at bedtime, and completely removed the next morning by alkaline lotions, such as bicarbonate of soda,  $\mathfrak{3j}$  to  $\mathfrak{3vj}$ . The reddened and perhaps freely discharging surface is then carefully dried, and painted with a one in ten solution of permanganate of potash; the painting is to be repeated once or twice a day, until a black scale of the thickness of a sheet of paper forms over the eczematous spot. At the end of a week the black crust is allowed to separate, and with the exception of perhaps a few fissures the cure is usually complete. This treatment can only be used where the part is covered, on account of the black disfigurement.

The treatment of White of Boston is strongly recommended by Duhring for acute eczema. Lotio nigra of full strength, or diluted with equal parts of lime water, is applied to the part with a sponge for a quarter of an hour, allowing the black

powder to remain on; then a little zinc ointment is smeared over, and the process is to be repeated every four or six hours.

Ichthyol is strongly recommended by Unna of Hamburg for the treatment of eczema, and is largely employed by many in spite of its smell and dark color. Either as ointment or lotion, as it forms an emulsion with water, it is no doubt useful in obstinate moist circumscribed patches, such as are often seen on the hands and arms, and it is used from five to fifty per cent., the weaker preparations being preferable where there is discharge. Unna begins with a strong preparation and gradually reduces the strength. Ichthyol is least objectionable in combination with the gelatin zinc paste, but it can also be used in combination with soft pastes like Lassar's, or in liniments like that of calamin.

Thiol has a similar action, and is also black, but it has no smell, and I usually employ it instead of ichthyol, which is too disagreeable to have a large place in my practice. Remedies which do not stain or smell, and can be used without interfering with the patient's employment, should always have the preference.

Picric acid in the form of a saturated watery solution (about one per cent. solution) has been recommended by MacLennan, Gaucher, and others in acute discharging eczema. The solution is painted on or dabbed on with absorbent wool. It is said that itching and smarting immediately abate, and that it is not painful. The last statement is not correct; it often produces considerable smarting for ten to twenty minutes, and is very uncertain in its action, sometimes aggravating the inflammation instead of abating it. It should therefore be used tentatively over a small area, in case it should be unsuitable. I have chiefly used it in subacute cases, sometimes with success, but the proportion of failures was too great for its continuance in my practice. Some authors recommend that after painting the solution should be applied with wool soaked in it, and a dry pad of wool over that, but oiled silk must not be used, as maceration of the skin ensues.

Having given a general account of different methods of treatment, it now only remains to state the modifications required, according to the position of the eruption.

*E. of the Head.* In a child cut the hair short and soften the

crusts with strips of flannel dipped in oil, and fasten them on with a calico cap for four or six hours; the crusts may then be removed by means of a comb or the fingers, or where they are much matted, by cutting the hair under them. If it is a case of *E. pustulosum*, an iodoform or iodol ointment, gr. 5 to ℥j of vaselin or lard, spread on strips of lint and kept on with the cap as before, will be the best, renewing night and morning, after wiping off the old ointment. In a week or so the pustular element will be removed, and the eruption will be dry, or at most serous; oleate of zinc, or lead, or boric acid ℥ss to ℥j may then be substituted for the iodoform, with later perhaps a few grains of ammoniated mercury added. In *E. vesiculosum* these ointments may be used at once. Boric acid and starch poultices are used by Jamieson for preliminary cleansing purposes, and these are safe and efficient, but linseed and bread poultices should be absolutely tabooed, as they too often serve as nutrient media for pus and other cocci.

In adults the ointment may be applied with the finger as directly as possible to the scalp, and when the acuteness of the inflammation has subsided the mixed ammoniated and yellow oxid of mercury may be used of various strengths, from gr. 10 to ℥ss of each, according to the degree of inflammation. Where there is great irritation a few minims of oil of cade to the ℥j is a good addition; the hairs should be extracted where there is pustular inflammation round them.

In some adult cases of pustular eczema capitis a lotion of glycerini plumbi subacetatis ℥ss, liq. carbonis detergentis ℥fss, aq. rosæ ad ℥vj acts admirably.

*E. of the Ears.* The redness and swelling are often very great. Calamin liniment freely applied and painted inside the meatus several times a day generally gives relief; lactate of lead lotion, or glycerin of the subacetate of lead, one to ten, are also good applications, always with protection against temperature changes. Acidi borici ℥j, pulv. amyli. zinci oxidi āā ℥ss is a good dusting powder.

*E. of the Face.* In infants lead, zinc, or boric acid ointments, or Lassar's paste, are usually preferable, and in most cases the oleate of zinc is preferable to the oxid. Here again, the ointment should be applied continuously under a mask, and here, as in all infantile eczema, the great trouble is to prevent scratch-

ing, which often frustrates all curative measures. Whenever it appears irritable, the rag should be raised and almond oil painted on, and the rag replaced. The hands at night must be restrained, and in very obstinate cases it may be necessary to bandage them to the sides of the body, like a mummy. They seldom resent the confinement after the first few hours. In some cases the zinc, starch, and boric acid powder already mentioned suits well when dusted thickly on.

In adults, unless the discharge is very profuse, calamin lotion agrees well and is very convenient; if it is too drying, calamin liniment may be substituted, or some other greasy, soothing astringent. The glycerin of subacetate of lead is cleanly and comfortable, but in some cases the glycerin disagrees. When the acute inflammation has subsided, the addition of some liquor carbonis detergens is often desirable, beginning with ℥v to the ℥j and increasing as may be found necessary.

*E. of the Eyelids, or Blepharitis*, is common in strumous children. The crusts must be softened with oil, picked off, the hairs extracted, and ung. hyd. nitratis, 1 to 8, smeared along the edges. In obstinate cases McCall Anderson's plan of painting liq. potassæ gr. 10 to ℥j carefully along the edges, after protruding and everting them between the thumb and finger, is valuable. The action of the alkali may be restrained in a few seconds with weak acetic acid and water, and the process repeated every few days, with the dilute nitrate of mercury ointment in the intervals. Suitable constitutional treatment should always be employed. Where the mercurial ointment cannot be borne, boric acid ointment ℥ss to ℥j may be used.

*E. of the Lips* is troublesome, and leads to fissuring, on account of the constant mobility. The frequent, often unconscious, licking of the dry lips is an aggravation.

The frequent application of soothing remedies, *e. g.*, liq. plumbi subacet. ℥xv to ℥j of white vaselin or lard, may be tried, or plumbi carb. gr. 15, cremor. frigid. ℥j should be frequently applied, and always after licking the lips.

If these fail, Hebra's carbolic lotion referred to may be painted on, or nitrate of silver in nitrous ether may be resorted to.

*E. of the Beard.* When the hairy part of the face is affected

shaving should be insisted on as soon as the acute stage is over, if not before; it is not so painful as might be anticipated, and if the patient is once prevailed upon to do it, there will be no further difficulty in keeping it shaved. Where there are pustules the hair should be extracted; when it is acute, soothing remedies must be employed as continuously as possible; afterwards hyd. oleate one or two per cent., weak sulphur ointment gr. 5 to gr. 20 to ℥j, or ung. hyd. nitrat. dilut., are the most suitable; in short, the treatment for sycosis is applicable here.

In very old-standing cases multiple linear scarification of the whole surface is a very valuable preliminary, the surface being subsequently dressed with iodoform gr. 5 to gr. 10 to ung. acidi borici ℥j: the scarification may have to be repeated. Cases of many years' duration may be cured by this method.

*E. of the Arms* offers no special difficulty; soothing astringents and antiseptics in pastes or ointments can always be continuously applied with a bandage when acute, while in the chronic scaly patches, nitrate of silver, liq. carbonis detergens and lead, etc., or oil of cade, may be painted on. The papular forms are very common here, and bear tar well, but when there are only fresh papules breaking out continually, calamin lotion is often sufficient.

*E. of the Palms* is always troublesome, on account of the constant movement, and also because the natural thickness of the epidermis is increased by disease. In all cases it is essential to remove the thick epidermis, as otherwise medicaments are useless. This may be done by mechanical or chemical means. The hard skin may be rubbed down with pumice stone or fine sandpaper. Unna's plan of applying salicylic acid plaster, renewing every two or three days, is an excellent one; the whole thickened epidermis may be peeled off in this way. Another plan I have found work well is to apply a pancreatic emulsion constantly on lint; this disintegrates the cuticle, and much facilitates removal. Morris suggested papain with the same object, but it is not so powerful. Pepsin is also not so effectual, and is less suitable, as it requires an acid medium to act in, while the others act in an alkaline fluid.

After the epidermis is removed salicylic acid gr. 10 to ℥j to ℥j is one of the best remedies; here the gelatin zinc paste is very useful as a base, as it can be kept on without trouble, and

only requires renewing once in twenty-four hours. Painting with Stockholm tar and then soaking it off with olive oil is often most valuable. Thiol and ichthyol are also said to have a powerful effect in diminishing thickening, and there is no harm in prescribing them, preferably along with salicylic acid, but I have not had convincing proof of their effect in this direction, though I have often tried them. When the inflammation is at all acute, soothing applications are best. When the fingers are affected each one should be dressed separately. Mercurial ointments, the oleate especially, are useful for *E. palmæ*, but they must not be applied continuously.

*E. of the Nails* is always a very slow affair, as it is so difficult to get at the matrix; wrapping the ends up in ung. picis continually is often very useful, but disagreeable; less objectionable is salicylic acid ointment 3ss to ʒj. It may be pushed under the nail fold. It has to be used intermittently, as the skin gets sore. As a rule, patients can only give up one or two fingers at a time to treatment. Shoemaker recommends oleate of tin ʒj to the ʒj. A weaker preparation gives a luster to the nail, according to him.

*E. of the Genitals* is one of the most distressing varieties for the patient, and the most troublesome for the attendant. On the scrotum, when acute, ointments seldom succeed except sometimes a weak boric acid ointment. Calamin liniment, or lotion, or the lactate of lead often answers well. Jackson is a strong advocate for sheet-rubber envelopes. The itching, which is quite maddening sometimes, may be relieved by painting on the nitrate of silver solution, gr. 5 to 15 to the ʒj of nitrous ether, or by Bulkley's plan of applying a handkerchief dipped in water as hot as can be borne for two or three minutes, not more, then drying, and putting on the local application selected, at once. This I have found very successful sometimes, and it has secured a night's rest; but better than all is the application of a mustard leaf over the lumbar enlargement; this relieves the intense pruritus more completely and for a longer period than anything else.

When on the penis the lead and liq. carbonis detergens lotion, applied two or three times a day, is a good remedy in many cases.

*E. of the Vulva* is not quite so troublesome as that of the

scrotum, though bad enough. Calamin liniment or lactate of lead is useful here also, but the nitrate of silver solution, not more than gr. 5 to the ℥j of nitrous ether at first, is probably the best application; as a rule, the smarting only lasts a few minutes; of course, the possibility of its being due to diabetes mellitus must be borne in mind, and if glycosuria is present, constitutional treatment in accordance with it must be adopted. Uterine or ovarian irritation, if present, should also be removed.

*E. of the Legs.* In all cases of eczema below the knee rest in a horizontal position is an important adjuvant, especially if there are varicose veins; bandaging carefully from the foot upwards is the best alternative to rest, but I do not care for Martin's rubber bandages, except when there is an elephantiasis condition or tendency to papillary hypertrophy. Boric acid ointment ʒss to ℥j is one of the most generally applicable, unless the discharge is very profuse, when a lead lotion of some kind is better. I use chiefly the glycerin of the subacetate, 1 to 8, but sometimes the lactate is preferable.

For chronic patches on the knee or popliteal space the tar and olive oil or Hebra's soap treatment are the best. The gelatin zinc paste is a very convenient application for these parts if the surface is not too moist.

**E. Circumscriptum (?) Parasiticum.** I venture to give this name to the form of eruption which looks like a dry eczema, but its border is more sharply defined than is usual in *E. squamosum*. It occurs chiefly on the legs, especially below the knee, but I have seen it \* on the arms. It is made up of minute papules, which aggregate into a pretty uniform, moderately red, scaly patch, with sharply defined borders, and perhaps outlying papules; it remains for years, if untreated, slowly extending or forming fresh patches, and is not symmetrical; there is moderate itching. I have not succeeded in demonstrating a parasite, but a weak parasiticide ointment cures it, such as sulphur. sublim. gr. 20, acid. carbolic. ℥xv, adip. benz. ℥j.

Hans Hebra † has described a parasitic eczematous eruption,

\* M., æt. fifteen, private note book, vol. i. p. 165.

† *Wien. med. Blätter*, 39 and 40, 1881. Abs. *Ann. de Derm. et de Syph.*, 1883, p. 142.





DERMATITIS REPENS.

To face page 235.

but it is accompanied with weeping and crusts, and is very chronic, if untreated. It is situated in the flexures of the elbows and knees, and on the neck. He treats it with Wilkinson's sulphur ointment, or with first a ten per cent. pyrogallic acid ointment, and afterwards a five per cent. alcoholic solution of salicylic acid.

**Epidemic Eczema.** See Epidemic Exfoliative Dermatitis.

### DERMATITIS REPENS.

*Definition.*—A spreading dermatitis, usually following injuries, and probably neuritic, commencing almost exclusively in the upper extremities.

Since I first described this disease in 1888 \* from three cases, it has become recognized by other observers, and some additional facts have been gained which throw a little more light on its real nature. Dr. Garden of Aberdeen, Mr. Charlton of Salisbury, and Dr. Coward of Almondbury, have sent me photographs or drawings of typical cases, and I have now seen over a dozen cases, all of them remarkably alike, except as to their extent. I have also seen three cases of a dry form.

Nepveu † read a case at the French Congress of Surgery in 1886 which probably belongs to this category. The patient was a woman, in whom a vesicular eruption, commencing in a superficial wound of the thumb, spread over the whole body. Bacteria were found in the vesicles, and the disease was checked by an iodoform dressing.

In all the cases in which inquiry has been made, an injury, often a trivial one, has been the exciting cause. Vesicles or a bulla have appeared at the site of the injury, and these have ruptured and the elevated epidermis been thrown off, leaving a bright red surface, oozing a clear or slightly turbid fluid. The border of the denuded area is bounded by a collar of the epidermis, which is raised up by subjacent fluid, clear or turbid, and is sodden and irregular. Sometimes extension takes place

\* In the first edition of this work, with an account of the three cases. I also read a paper on it at the Derm. Congress at Vienna in 1893. Stowers' case is now referred to acrodermatitis perstans.

† Paris correspondence, *Brit. Med. Jour.*, December 11, 1886.

by the continued detachment of the epidermis by further exudation, or there may be fresh vesicles or small bullæ just beyond the border, which break down and add a newly denuded area to the original adjacent one. Although new adjacent foci may thus be formed, the disease does not generalize by the formation of new distant foci. Cases may last for weeks, months, or even years.

The extent of the disease varies greatly; in the majority it does not extend beyond the hand first attacked; but my first case extended to the elbow, my second began on the wrist, and extended down to the hand and up the arm, across the back of the neck, and down the left arm to the elbow, the old parts healing while there was fresh extension. It lasted nearly a year. Other cases have been more amenable than these, but they have always given a great deal of trouble to cure.

*Dry Form.*—In three cases a very similar condition was present, with slow peripheral extension and undermined epidermic border, but the inflamed part was dry throughout. In two there was a history of previous syphilis, and in the third it could not be excluded. In all of them a trivial injury was the exciting factor, and their general course was, like the others, quite uninfluenced by internal specific treatment. One of them was particularly obstinate, and lasted nearly two years, in spite of specific treatment, local and general, and of varied local treatment, such as is ultimately successful in non-specific cases.

**Acrodermatitis Perstans.** Hallopeau \* has described, under the French equivalent of the above title, a condition closely allied, in its symptomatology at all events, to dermatitis repens. Stowers † and Frèche ‡ have each described a case, the sequel of Frèche's case being Case IV. of Hallopeau; and Audry § has published three cases.

\* Hallopeau, "Les Acrodermites Continues," *Revue Générale de Clinique et de Thérapeutique*, February 12, 1898, and p. 838 of Hallopeau and Leredde.

† Stowers, "Notes on a Case of Dermatitis Repens," *Brit. Jour. Derm.*, vol. viii., 1898, p. 1. Colored plate.

‡ Frèche, "Eruption Trophonévrotique des Extrémités rappelant la Dermatitis Repens," *Annales de Derm. et de Syph.*, vol. viii., 1897, p. 491.

§ Audry, "Lés Phlycténoses Récidivantes des Extrémités," *Annales de Derm. et de Syph.*, vol. ii., 1901, p. 913, republishes all previous cases,

Hallopeau distinguishes a vesicular, bullous, and a purulent type, and a mixed form (Audry's case). The disease, like dermatitis repens, begins on one finger or thumb, and may be limited to it for a long time; then others are successively involved, and it may spread to the palm, less often to the back, but the whole hand is rarely involved. The vesicular form has not so far attacked the toes, while the pustular has done so. In both the nails are liable to be affected, by thickening, furrowing, pitting, and discoloration, in some cases followed by complete loss. The oral mucous membrane and tongue have been attacked in two cases. The initial lesions are vesicles or pustular phlyctenulæ on a reddened base, which rupture after a time and leave excoriations, and some have apparently started from whitlows, and in some an injury has been the immediate antecedent. The disease is usually confined to the extremities, chiefly the hands, but secondary eruptions may arise in the pustular form, by the development of fresh foci and not by continuity, on any part or even over the whole body, and in one case (Frèche-Hallopeau) a fatal impetigo herpetiformis developed. The secondary eruption may be erythematous and desquamating, like pityriasis rubra, instead of pustular. These secondary eruptions are symmetrical, and affect especially the neck, arms, elbows, wrists, scrotum, and knees, ankles and lower part of the legs, but no part, including the scalp, is exempt. The skin lesions on the extremities exactly correspond in the vesicular forms with dermatitis repens, but have less tendency to spread beyond the hand than the latter. Many cases of dermatitis repens have never spread beyond the hand, and Hallopeau is not justified in claiming such cases as his acrodermatitis on this point alone. More valid grounds are the tendency of acrodermatitis to be kept up indefinitely by recurrences in the same place, while dermatitis repens is kept up by continuous extension, the original place healing, though very slowly. Acrodermatitis, when secondarily attacking parts

and adds two more, ten in all. In vol. viii., 1897, p. 141, he proposed a classification of diseases attacking the extremities—"acrodermites." But classifications on such small bases are too like an inverted cone to be of practical value.

M. Carle reports a case of five years' persistence apparently cured by electro-cautery. *Loc. cit.*, vol. iii., 1902, p. 130.

other than the extremities, does so by the development of fresh foci, and large areas are produced by the coalescence of several such foci. It is also more persistent, and may be fatal ultimately. On the other hand, they resemble each other by both attacking and being often limited to the extremities; in the similarity of the skin lesion; by the slow evolution; by the frequency of a traumatism being the starting-point; and by their rebelliousness to treatment, though dermatitis repens does eventually get well. Moreover, when healing has taken place there is not the same tendency to recur in the same place in dermatitis repens.

*Pathogeny.*—The cases tend to show that the dermatitis starts as a result of a peripheral neuritis, generally set up by an injury often quite trivial; and since antiseptics are generally eventually successful, it is probable that secondary parasitic invasion tends to produce extension of the disease, a view with which Audry agrees; but Hallopeau regards this and acrodermatitis perstans as entirely of microbic origin. The staphylococcus albus has been repeatedly found in several of his cases.

*Diagnosis.*—The distinctions between dermatitis repens and acrodermatitis perstans have been sufficiently drawn. The only other disease for which dermatitis repens may be mistaken is eczema. From this it differs in its purely local origin; its unilateral limitation, at all events for a long time; its absence of tendency to form new foci, except close to the main seat of disease; in the sharply defined border with undermined edge of sodden epidermis; the complete denudation of the epidermis on the part over which it has traveled; and in the absence of marked itching and burning. Iodoform dermatitis may somewhat resemble it, but the distinctions are much the same as from eczema, and there would generally be evidence of contact with the drug.

*Prognosis.*—All the cases have got well ultimately, but some have been very rebellious to treatment. With regard to acrodermatitis perstans the prognosis is not so good. Constant recurrences keep the disease up for years, crippling the patient, and a fatal result has ensued in the Frèche-Hallopeau case, in which impetigo herpetiformis supervened. Stowers' case lasted forty-five years, when the patient died of abdominal cancer. All the A. perstans cases have been of long duration.

*Treatment.*—The usual soothing applications for acute eczema are nearly always useless in dermatitis repens, except the lactate of lead lotion, which has been successful in arresting the disease in some cases; but the most efficacious treatment in my experience is to cut away the undermined epidermis, and paint on once a day a ten per cent. solution of permanganate of potash and let it dry, repeating it daily for a week, when a black crust is formed, which can be detached in a few days. This is Beissel's treatment for eczema, and requires to be repeated to various parts where the disease is not killed.

A one per cent. solution of nitrate of silver in spirit of nitrous ether was thoroughly tried in my first case without success, while Hallopeau found it in a 1 in 8 solution one of the best remedies for acrodermatitis perstans. In the purulent form he thought the fluid called laurenol was better still; it is a medley of sulphate of copper, chlorid of zinc, alum, chlorid of potash, chlorid of sodium, picric acid, boric acid, and hydrochloric acid. A three per cent. solution was applied on compresses; under this the suppuration disappeared for a time, but usually recurred; but once a permanent cure was effected.

In some cases of dermatitis repens rubbing in iodoform has succeeded in arresting the disease.

In the dry form rubbing on unguentum hydrargyri has a good effect for a time, but in the obstinate case before mentioned the treatment ultimately successful was to apply Unna's salicylic and creasote plaster to the edge, until the scaly collar could be softened and removed. Then a compress of 1 in 4000 perchlorid was applied till the part was sore, and then boric acid ointment put on to heal it. By these means perseveringly followed up the border was ultimately healed up.

### DISEASES DUE TO PUS COCCI.

Modern research has shown that pyogenic organisms play an important part in the production of numerous inflammatory diseases of the skin, for the most part with pustular lesions.

The pus cocci include not only the familiar staphylococci, but the streptococci; and most eruptions with pustular lesions are caused by one or other of these genera, and it is the eruptions produced by them which are now to be considered.

The clinical variation is doubtless, in most cases, the result of the anatomical difference in the path of introduction. In impetigo contagiosa, the cocci gain entrance through the epidermis, abraded through scratching or otherwise; the inflammation is limited to the papillary layer, and on the destruction of the *materies morbi* the lesion heals readily without scar. In boils and carbuncles the mode of entrance is by the hair follicles and sebaceous gland orifices, but in carbuncle the cocci penetrate below the cutis into the planes of connective tissue, which accounts for its frequent disastrous extension.

Sweat boils have hitherto not been shown to be due to pus cocci. The opportunities for the investigation are fewer, and attempts to discover the cause have been hitherto negative, so at present it can only be inferred by analogy. In folliculitis the cocci are limited to the hair follicle and its immediate neighborhood.

There are also other organisms which sometimes produce pustular lesions without the intervention of pus cocci, and must therefore be considered as pyogenic. Such are the *Trichophyton megalosporon*, *ectothrix* and *endothrix*, the former most frequently; the *acne bacillus*, *blastomyces*, and the tubercle bacillus. The diseases produced by them are described in their respective sections.

***Staphylococcus aureus*,  
*albus*, *citreus*.**

BOILS.  
CARBUNCLES.  
COCCOGENIC SYCOSIS.  
LUPOID SYCOSIS.  
IMPETIGO of Bockhart, and secondarily in other forms.  
QUINQUAUD'S "FOLLICULITIS DECALVANS."  
DERMATITIS PAPULARIS CAPILLITII, and probably other forms of pustular folliculitis.  
PEMIPHIGUS NEONATORUM.  
PEMIPHIGUS (CONTAGIOUS).  
CUTANEOUS ABSCESSSES.  
SUPERFICIAL WHITLOWS.  
ERYSIPELAS.\*  
GRANULOMA PYROGENICUM, and other fungating papillary growths.  
ACNE VARIOLOFORMIS, seu NECROTICA.

\* While erysipelas in man is usually produced by streptococci, Jordan has shown that it may also be produced by staphylococci, and in rabbits even by pneumococci and *bacterium coli commune*.

The accompanying tables show the respective rôles of the genera of pus cocci according to the most modern views; but, as will be shown, when considering the pathology of each affection, absolute proof that they are really the pathogenic organism is wanting in some of the diseases.

Secondary staphylococcal invasion occurs in impetigo contagiosa, if Sabouraud's views are correct, in pustular eczema, and various forms of pustular dermatitis.

**Streptococcus pyogenes \***  
" of Fehleisen

{ IMPETIGO CONTAGIOSA, and its varieties, including Ecthyma, but excepting Bockhart's.  
ERYSIPELAS.  
ERYSIPELOID.  
SUPERFICIAL WHITLOWS.\*

## IMPETIGO.

*Deriv.*—*Impetere*, to attack.

This term was used by the older writers for various forms of pustular dermatitis, chiefly eczematous, the formation of pus constituting, in their view, a special disease. Willan and Bateman described five varieties: I. figurata, sparsa, scabida, erysipelatoides and rodens; the first four were eczematous, or impetigo contagiosa, the last was probably tertiary syphilitic ulceration, or sometimes rodent ulcer. Other obsolete varieties by later authors need not even be mentioned, as all these terms are now discarded; there remains only the impetigo contagiosa of Tilbury Fox and that of Bockhart.

The term impetigo † should not be employed without its explanatory affix, as by itself it conveys no definite meaning.

\* These two are said by some authors to be identical; by others to be different organisms.

† Gilchrist found both streptococci and staphylococci.

‡ Dühring has described under "Impetigo" what he considers a separate affection, but after long observation I am unable to separate it from I. contagiosa. It is said to be pustular from the first, more deep-seated, and therefore has a thicker and more rounded roof to the lesion, remains discrete, and is not contagious; to the last attribute I strongly demur. Its treatment is the same as that for I. contagiosa. It corresponds in some respects to Bockhart's impetigo, but the latter is always follicular.

**IMPETIGO CONTAGIOSA.\***

*Synonym.*—*Porrigo contagiosa.*

*Definition.*—Discrete vesicles or pustules, due to inoculation with contagious pus.

This is an important eruption, on account of its great frequency and liability to be mistaken for eczema. It was described independently by the late Mr. Startin and Dr. Tilbury Fox, the latter laying stress upon one phase of it, in which it occurs pseudo-epidemically, chiefly in the children of the poor. This form is one of the conditions reported from time to time as "epidemic pemphigus."

*Symptoms.*—In the common run of cases primarily, the eruption is a flat vesicle or "watery head," from a pea to a finger nail in size, which is soon converted into a flat, irregularly outlined pustule. The contents dry up into a yellow at first, and later into a greenish scab, completely covering the excoriated surface, and there being no red areola, the scab has the appearance of being "stuck on," as Fox expressed it.

The position of the lesions is usually due to the implantation of the pyogenic organisms by the finger nails in the act of scratching; and while the most common positions are round the mouth, chin, nostrils, and occipital region, they may occur in any part accessible to the finger nails. Chiefly from friction, fresh lesions arise near the original ones, and they may coalesce into small or large patches, and look like a crusted eczema, but discrete isolated lesions are almost invariably to be found in the neighborhood.

A few isolated pustules are often found on the hands and other exposed parts, and superficial whitlows may be present at the finger-ends. In the occiput pediculi are the irritants which lead to scratching, and the pus dries into greenish-black scabs, matting the hair together, and producing so much irritation in the neighboring glands that they enlarge, inflame, and sometimes even suppurate.

*Variations.*—It must be remembered that there are all grades of severity and extent of the eruption, which modify its ap-

\* Author's Atlas, Plates XII., XIII., and XIV., illustrate the ordinary, bullous, and gyrate forms of impetigo contagiosa and of ecthyma.

pearance considerably. Thus, there may be a few discrete lesions only, or they may be combined with extensive patches, or the eruption may spread widely and rapidly over the body, and then is usually vesicular in the main.

The lesions also vary much in size and contents, they may be from a hemp seed to a finger nail, and while usually flattish in elevation, occasionally form large projecting bullæ, either primarily or from coalescence. The rule is for them to begin as vesicles, and become vesiculo-pustular and pustular at a later period, but they may be vesiculo-pustular or pustular from the first, without being situated at a hair follicle, the latter especially in cachectic children.

On the other hand, I have seen the eruption in adults as red raised irregular papules, or patches one-third of an inch or more across, extremely irritable, and scratched into an excoriation at the top, but none of them distinctly vesicular or pustular; bullous and pustular lesions may, however, occur in adults.

It is also modified by position; face lesions seldom have an areola, but when it occurs on the limbs, it is very liable to be rubbed, then the pustules get ruptured, covered with a flat, irregular scab, and surrounded by a more or less prominent areola.\* Lesions of this kind used to be considered to be of a different nature, and were called ecthyma, but their association with the more typical aspect of the disease on the face is too frequent for there to be any doubt that they are the same eruption altered by friction, to which it is more exposed on the limbs than it is on the face.

The epidemic form is ushered in by transitory febrile symptoms, and comes out in crops of vesicles for about a week; it then dries up and runs its course in a fortnight. No line can, however, be drawn between these cases and the far more common condition in which there are no febrile symptoms, while the eruption is more limited, and does not, as a whole, run a definite course. It is almost certain that, in these rapidly developing generalized forms, the pus cocci get into the circulation, and thus spread the eruption all over the body, and their toxins, when they are numerous, produce the febrile symptoms.

\*Sabouraud states that the impetigo contagiosa of T. Fox is always primarily vesicular, but this is only true as a general statement, to which there are many exceptions.

There is little doubt that most, if not all, of the localized epidemics of what are commonly reported as pemphigus contagiosus are really the impetigo contagiosa of the epidemic form of Tilbury Fox.

**Impetigo contagiosa bullosa** in the sporadic form only differs from the ordinary type in the lesions being larger, circular \* flat bullæ, with narrow areola in some cases; the bullæ are more convex, and closely resemble ordinary pemphigus in form, but do not run the course of that disease.

**Impetigo Contagiosa Gyrata.** In July, 1894, † I met with a gyrate form for the first time. In that and the following year other cases, but less marked, appeared in the practice of others as well as in my own, but they have since ceased to occur except with very slight development. Apparently similar cases have, however, been reported from America ‡ and India under other names. The only explanation I can suggest is that the variation developed in the great heat of the summer of 1893, and has gradually disappeared, and it is now again only to be found in hot climates.

In this form the initial lesions vary from a hemp seed to half an inch in diameter, and form small flaccid bullæ with seropurulent contents. As they enlarge peripherally they become ruptured with a red areola inclosing a border raised up by fluid, and within that is a thin, flaky crust of a greenish hue, which forms another circle with a ragged inner edge, while the central part, in those sufficiently large, heals completely.

**Impetigo of Bockhart** is a pustular folliculitis, but is described here for convenience of comparison. This form, according to Sabouraud, differs from that of Tilbury Fox in being always primarily pustular, situated at a hair follicle, and due to a different organism, viz., staphylococcus aureus and albus. It

\* This form in flat bullæ is well depicted in Tilbury Fox's Atlas, Plate XXIV.

† I read a paper on "Impetigo Contagiosa Gyrata" in *Clin. Soc. Trans.*, vol. xxix., 1896, with colored plate. The case is also illustrated in Plate XIV. of my Atlas.

‡ "On Impetigo Contagiosa Annulata," Schamburg. *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. xiv., 1896, p. 169, he refers to Plate VII. of Rayer's Atlas, but it is questionable if it was the same disease.

begins as round pustules with a long or coarse hair in the center, and its especial site is on the hairy scalp at the vertex or parietal region, and the pustules vary from minute pustules to the tip of the finger in size. Its onset is sudden as a crop of follicular pustules, and it is accompanied, or even preceded, by glandular enlargement of the neck. It lasts some days, reaching its acme in two weeks, and subsides in three weeks with falling off of the crusts. The pustules are seldom ruptured by scratching, and many dry up without breaking. Sometimes deep folliculitis ensues with true furuncles or even abscesses.

Successive crops of pustules and relapses are frequent. Other regions less frequently attacked are the neck, face, back, buttocks, and thighs, and it may start in those places. It is the precursor of all furuncular eruptions and frequently complicates the impetigo of Tilbury Fox, sometimes in the form of miliary pustules with a hair in the center of each.

It is related to *acne capillaris* of adults, *acne necrotica*, *furunculosis*, *suppurative acne*, *iodid acne*, *traumatic* and *pustular dermatitis*.

Such are the description and views of Sabouraud, but with much of this I cannot agree. While pustular folliculitis as described is found very often on the occipito-vertex regions of the scalp with enlarged cervical glands, the lesions are almost entirely due to the scratching induced by the presence of *pediculi capitis* as previously described, and the glandular enlargement does not precede, but follows, the pustular development. I strongly doubt whether these scalp lesions are really due to a different disease and organism from that described by Tilbury Fox, the pustular character being largely due to position, which is more favorable to the development of pus-organisms than the skin of the face.

Sabouraud accounts for the different lesions being so constantly associated by asserting that Bockhart's impetigo frequently complicates that of Tilbury Fox. The simpler explanation, that they are only variants of the same disease, is not yet conclusively disposed of, as will be seen under the Pathology section.

*Etiology.*—Out of four hundred cases seen by the late Mr. Startin, three-fourths were children under seven years of age, and only twenty-seven were adults. It is chiefly seen among

the poor, and is always due to the inoculation of contagious pus, independently of its source. Scratching easily leads to purulent lesions in children; hence pediculi capitis are a very common cause of *I. contagiosa*. Scabies and urticaria occurring mainly on the trunk and limbs, the lesions generally assume the so-called ecthymatous character. In a medical student I traced an acute, general outbreak, mainly vesicular, to the irritation of the harvest bug. Of course, it may also be propagated from one person to another. Much has been said of its frequently following on vaccination, but this is only another instance of pus inoculation; the vaccine lesion is often very itchy in its purulent stage, the child scratches it, and transfers the pus to other parts of the body.

A few years ago there was much discussion on what was called "football impetigo," or, as the schoolboys called it,



Fig. 15.—Micrococci of Impetigo Contagiosa.  $\times 550$ .

"scrum-pox." It is ordinary impetigo contagiosa, propagated in playing the Rugby game from one boy to another, and also from their wearing each other's playing clothes. Cultivations by Galloway yielded apparently pure cultures of *staphylococcus aureus*.

The contagium probably flourishes more easily in the cachectic, and the child with a severe attack is generally pale and ill-nourished. This may, however, sometimes be the consequence of absorbing a toxin from the lesions, sufficient, when they are numerous, to damage the general health, and even produce febrile symptoms.

*Pathology.*—The lesions, whether vesicular or pustular, are due to the inoculation of pus cocci into the superficial layers of the skin, hence no scars are left when the diseased area heals.

So far all are agreed, but of late years it has been asserted that the impetigo contagiosa of Tilbury Fox is always primarily vesicular, and due, some say, to the streptococcus, while others consider it to be a specific coccus differing from both *staphylococcus aureus* and *streptococcus pyogenes* of Fehleisen;

while the primarily pustular follicular impetigo, as described by Bockhart, is a separate disease, and is due to the staphylococcus pyogenes aureus.

Further, it is generally admitted that in the pustular stage of Fox's impetigo, staphylococci are also present in addition to the streptococci, but it is said as a secondary invasion.

There are also the possibilities, viz.: That, as has been proved for erysipelas, by Jordan, both streptococci and staphylococci may be capable of producing the lesions of impetigo contagiosa; and, secondly, that these streptococci and staphylococci are different states of the same organism.

A short history of the course of events will best show the present aspect of the question.

I was the first to describe organisms in the fluid of unruptured vesicles in 1881\* in the form of diplococci and short chains, but no cultures were then made. Later cultivations in solid media by various observers gave apparently pure cultures of staphylococcus, and three years later Bockhart also found them and considered them to be the streptococcus of Fehleisen, the erysipelas microbe, and in his inoculations he produced lymphangitis.

I found chains of micrococci in twos, or multiples of two, which were most abundant in the pustules, and were also present at the periphery of the epithelial cells, but not in the pus-cells as in Fig. 13. E. A. Barton, working in my laboratory, obtained pure cultures of staphylococcus pyogenes aureus from the fluid of unruptured vesicles. Inoculation on his own arm produced a vesicle, which soon healed. He was prevented from pursuing the subject, but Dubreuilh of Bordeaux and others independently came to the same conclusion.

Unna and Schwenter-Trachsler in 1899 made elaborate researches on Fox's impetigo, and also described a specific coccus differing from staphylococcus aureus, and in 1900 Sabouraud came to the conclusion that Fox's impetigo was due to the streptococcus of Fehleisen, and Bockhart's to the staphylococcus aureus.

Gilchrist of Baltimore found streptococcus pyogenes to be the agent. On the hand other, Charles White of Boston,\* in 1899, well aware of these researches, still found only staphylococcus aureus as the pathogenetic organism, as also did Corlett. Kaufmann in 1899 found in unruptured vesicles the same chains and diplococci as I had done, but from his cul-

\* *Lancet*, 1881, vol. i. p. 82. Fluid was withdrawn in a capillary tube from an unruptured vesicle and blown upon a cover glass, dried, and stained with methyl violet. The cocci were then readily observed with an object glass magnifying 550 diameters.

† White gave an excellent historical review in a brochure read before the Massachusetts Med. Soc., June 13, 1899, with references to date.

tures concluded that the chains were too short to be the true streptococci of Fehleisen; he considered the organism he isolated to be a specific coccus, and generally confirmed the view of Unna and Schwenter-Trachsler. Matzenauer also isolated a coccus which he was not able to differentiate with certainty from staphylococcus aureus. Nabarro,\* from an unruptured vesicle of a case of my own, obtained a pure culture of staphylococcus aureus both in bouillon and gelatin. From these differences of opinion it is obvious that further research is still necessary; but in order for observations to be of value, only fluid from unruptured vesicles must be used, and liquid media employed for cultures, as in solid media staphylococcus grows so much more vigorously than the streptococcus that the latter is overshadowed, and an apparently pure culture of staphylococcus aureus nearly always results. To continue to make observations on fluid taken from beneath crusts is so obviously open to error as to be unscientific and waste of time.

*Diagnosis.*—The discrete character of the lesions, the absence of redness round them, unless they are rubbed, and the inoculability of the fluid, are the characteristic features. *Pustular eczema* of the face most nearly resembles it, and when the lesions of *I. contagiosa* have coalesced into a patch the resemblance is very close; but discrete lesions are nearly always to be found in the neighborhood in *I. contagiosa*, and the surrounding inflammation of eczema will give the clew to the diagnosis. It must, however, be borne in mind that sometimes the pus of pustular eczema becomes inoculable, and the result is a mixed condition. Appropriate treatment for the *I. contagiosa* removes it quickly, leaving the eczema uncomplicated. The differences between the impetigo of Fox and Bockhart have been sufficiently indicated.

*Prognosis.*—Under favorable conditions the disease will run its course to complete cure in two or three weeks, but is often kept up for an indefinite period by auto-inoculation.

*Treatment.*—This is simple, and always effectual. Remove the crusts by soaking in olive oil until they can be detached by the nails or a paper-knife, or by cutting the hair beneath them; on the face, bathing with hot water is sufficient to enable the crusts to be picked off; then apply continuously an ointment of hydrarg. ammon. gr. 10, lard or simple ointment ʒj, and in a few days the sore will heal up completely, and leave only a transitory redness. Other remedies will also cure it, but the above

\* Nabarro is the assistant teacher of pathology of University College, and has had large experience of bacteriological investigations.

obeys completely the motto "Cito, tuto et jucunde," and is only contra-indicated when the surface to be dealt with is very large, as in *I. gyrata* of a large part of the trunk. The surface may be sponged thoroughly once with 1 in 4000 corrosive sublimate, and then boric acid ointment spread thickly on lint or linen and closely applied.

**Ecthyma.** *Deriv.*—*ἐκθύμα*, a pustule.—This is still considered by some dermatologists to be a distinct disease. The only cases at all entitled to be so considered, in my opinion, are those cases of inoculated sores seen sometimes in butchers, farriers, cooks, etc., from decomposing animal fluids, resulting in irregularly outlined, flat pustules on a highly inflamed base, generally few in number and in the neighborhood of the primary inoculation; but even these are very likely produced by the same organism as the ordinary form, which is, I am convinced, only *I. contagiosa* of the limbs and trunk, in which a more or less red, raised, and even rather hard areola is developed by friction, scratching, or other irritation.

The lesions are invariably secondary either to the ordinary form of *I. contagiosa*, as seen on the face, or to some pruritic disease, such as prurigo, scabies, pediculosis, or other parasitic irritation, and in children also to urticaria. In short, whatever gives rise to scratching is liable to produce in predisposed subjects the discrete, flat, irregular scabbed pustules, with their surrounding areola, which characterize the so-called ecthyma, the lesions of which on the lower limbs sometimes attain to a large size, *e. g.*, an inch or more in diameter, with thick and almost rupioid scabs often deep-seated enough to leave scars.

In every case of this kind, therefore, it is not enough to give the eruption a name, but the source of irritation must be carefully inquired for. Sometimes this cannot be discovered, on account of the irritant being no longer in operation, the disease being kept up by auto-inoculation.

The pathogenetic organism is the same as that of impetigo contagiosa, according to Sabouraud, the streptococcus of Fehleisen.

The lesions can always be healed by the same treatment as that for *I. contagiosa*, but fresh ones may form if the source of irritation be not also removed. Since the eruption is most

easily excited in delicate children, in the destitute poor, the dirty and cachectic, good food and hygiene, cod-liver oil, and iron are often desirable adjuncts to the treatment, but not absolutely essential.

**Pemphigus Neonatorum.**—This is not really a separate disease, though it is usually so described, but is a bullous infantile variant of impetigo contagiosa.

The eruption begins in the first week or two of life, most frequently about the thighs, buttocks, and pubes, but may come out on other parts of the trunk and limbs and on the face, but, as a rule, the bullæ are in small numbers and their development is spread over several days. The bullæ rise abruptly from the surrounding skin without areola, and have pellucid contents, sero-pus or pus being exceptional, and it is only in the latter case that there is a narrow red areola. Bullæ have appeared on the mammæ of women who have suckled children thus affected.

If the child is placed in good hygienic conditions, and the bullæ and flexures are dusted with boric acid one part, zinc oxid, pulv. amyli, of each four parts, the bullæ present soon dry up and fresh ones cease to form, in the great majority of cases; but sometimes, especially in epidemics, the infants die, probably more from general septic infection, as in Emmett Holt's case,\* than from the eruption. In Bloch's† epidemic of fifteen cases they all died, and a mixed infection of streptococcus pyogenes and staphylococcus was present. When the mother has had puerperal fever ‡ with bullous eruption, and the child also has pemphigus, it is very likely to die.

These cases have been called malignant, but there is probably no essential difference from the mild form. I have seen a hemorrhagic form, in which millet seed to pea-sized mulberry red to purple bullæ from blood-stained serum began four days after birth and continued to come out; they were all over the

\* *N. Y. Med. Jour.*, February 5, 1895, p. 175.

† *Archiv. f. Kinderheilkunde*, xxviii., Bd. I. Abs. in *Brit. Jour. Derm.*, vol. xii., 1900, p. 304.

‡ Cases are recorded of this by Greer in *Brit. Med. Jour.*, June 6, 1894, p. 241. Both mother and child died; Staub of Posen, *Ann. de Derm.*, etc., vol. iii., 1892, p. 1200. In one case mother and child recovered; in two others the children died and the mothers recovered.

body, including the palms, soles, and mouth. The child died after five weeks. There were empyema infarcts in the spleen and small abscesses in the liver; no defect in the hygiene of the surroundings was noticed.

Marcuse \* reported a similar case to the Berlin Dermatological Society. There was extensive denudation of the epidermis. A case in which the contents of the bullæ were bright yellow, supposed to be bile, but not tested, was reported by Goodwyn † in a child three days old; the eruption got well in a week.

*Etiology.*—It occurs sporadically in unhealthy dwellings, or where there are other children with impetigo contagiosa or similar sources of pus cocci contagion; there are also endemic outbreaks in certain localities and formerly in lying-in institutions.

In one instance which fell under my notice the child was one of many who were attacked in the same lying-in institution; the disease ran a short and favorable course.

Some of these local outbreaks have been limited to the practice of a certain midwife, and in one such outbreak Bohn ascribed it to the midwife putting the child into too hot a bath; but it is really of septic origin, and now that asepticism is practiced in all lying-in institutions in this country, outbreaks have ceased to occur. In several sporadic cases I have been able to prove the existence of defective drains in the house where the child was born. Pernet, in investigating some cases in my clinic, obtained a history of mammary abscesses in the mothers of two cases. In another, on visiting the house, he found three other children with impetigo contagiosa. Matzenauer ‡ relates the case of a mother with impetigo contagiosa who infected her infant with resulting pemphigus neonatorum, and conversely says that when the infantile bullous eruption is communicated to adults, impetigo contagiosa results. He also says that, histologically, the lesion in both is situated between the rete and the stratum corneum. Bacteriologically, in both he found on

\* *Annales de Derm.*, vol. x. p. 90; the palms and soles were also affected.

† *Brit. Med. Jour.*, July 21, 1892.

‡ *Wiener klin. Wochens.*, No. 47, November, 1900, p. 1077. On the question of identity of pemphigus neonatorum and impetigo contagiosa.

cultivation a coccus indistinguishable from *staphylococcus aureus*. Brosin and others have also found this organism. This point has been investigated repeatedly in cases from my clinic for many years, at first with solid and recently with fluid media, and a pure cultivation of *staphylococcus aureus* always resulted, while Whitfield obtained a pure cultivation of *streptococcus* from one case. This would show that both organisms may give rise to these lesions.

Richter considers that Ritter's dermatitis exfoliativa neonatorum is a sub-group of pemphigus neonatorum. When mixed infections occur, hemorrhagic bullæ, gangrene, febrile symptoms, and death may ensue. Possibly this is the same type as that described by Tilbury Fox.\* Apparently healthy children are seized with severe constitutional symptoms, the skin is livid, the areola of the bulla is dark, the contents fetid, the ulceration is deep and unhealthy, its surface is dark, blackish, and exudes an ichorous matter, the edges being livid and shreddy, so that large circular depressed black gangrenous ulcers, acutely produced, are present. All parts may be affected and the infants die in ten or twelve days. From the context it would almost appear that Fox regarded it as a bad form of the disease described by Whitley Stokes under the name of pemphigus gangrænusus, which was probably varicella gangrænosa. See *Dermatitis Gangrænosa Infantum*.

*Diagnosis.*—Pemphigus neonatorum must not be confused with congenital syphilitic pemphigus. The latter also appears in the first week, but the lesions are pustular and attack the fingers, especially at the nail matrix, and there are other symptoms with pronounced cachexia, while in *P. neonatorum* the contents are clear, the lesions are large, the hands are seldom involved, and the child is often in perfect health. Effectual treatment has been mentioned already.

Outbreaks of **Epidemic Pemphigus**, or *P. contagiosus*, are from time to time reported. Some of them are the variety already described of *P. neonatorum*, others are examples of varicella bullosa or impetigo contagiosa bullosa, and it is still a disputed point whether there is a true pemphigus which may be contagious or epidemic. In my opinion they are all bullous forms of impetigo contagiosa.

\* Third ed., p. 212.

These epidemics occur invariably in children. Thus Colrat \* relates a case of pemphigus in an infant æt. eighteen months, and a fortnight after its admission four other children in the hospital for other ailments developed pemphigus, which ran a normal course. The bullæ were auto-inoculable, but the new one was smaller than the parent bulla. Micrococci like the figure 8 were found in the bullæ. He carefully excluded vari-cella bullosa as an alternative diagnosis, but they were probably impetigo contagiosa.

Dr. Blomfield of Sevenoaks wrote to me in December, 1891, informing me that there had been an epidemic in his neighborhood; ten to fifteen per cent. of the Board-school children had had it in the course of the year, whole families having been affected. The bullæ, up to the size of half a walnut, came out on the face, hands, and feet, dried up, and left impetiginous sores.

P. Manson † of Amoy has described a *P. contagiosus*, which, as it is peculiar to the tropics, might be called ***P. contagiosus tropicus***. It should be compared with impetigo contagiosa gyrata, with which it appears to me to be identical. There is a diffuse or infantile and an axillary or adult form, though neither form is absolutely limited by age.

In the *diffuse* form vesicles or tense bullæ up to half an inch or more in diameter, with clear contents and without areola, appear in crops, with irregular distribution, in any part of the body, except the scalp, palms, and soles. The contents soon get turbid and the bulla flaccid; it then soon ruptures, but instead of at once healing up, it spreads at the border with undermined edge to an inch or more in diameter, forming circles with pink, perhaps slightly crusted center, or it may heal at one side and spread at the other, forming crusted crescents and suggesting a syphilid. It is especially liable to attack fat babies where the adjacent surfaces are in contact, and may then form a diffuse raw surface over a considerable area. The disease occurs chiefly in hot weather, but may be kept up by auto-infection for an indefinite time, and is readily communicated to others. Micrococci in groups, or in fours, twos, or singly,

\* *Revue de Médecine*, December, 1884.

† *Transactions Hong Kong Medical Society*, vol. i. (1889), and reprint.

may be easily found by staining with an anilin dye. The Chinese did not seem so liable to it as Europeans.

In the *axillary* form the disease is limited to the non-hairy portions; one or two bullæ about one-eighth of an inch are first noticed, soon followed by fresh crops, which begin as minute red papules with or without a minute vesicle upon them; from these, small vesicles up to a buckshot develop, with a slight areola; then larger bullæ one-fourth to half an inch in diameter, which soon get turbid and rupture. The roof of the bulla may be left or rubbed off, but the lesion enlarges peripherally with its edge undermined to an inch or more; these different elements are mixed up in various proportions with others healed, or in process of healing. Manson thinks that the longer the duration the smaller the lesions. The treatment of both forms is simple and effectual. Twice a day the bullæ should be opened, emptied, and the parts thoroughly sponged with 1 in 1000 perchlorid of mercury solution, and then a boracic acid dusting powder applied, adjacent surfaces being carefully separated. White precipitate ointment is also effectual, but, especially in hot climates, less pleasant than the perchlorid. Careful consideration of this affection shows a remarkable resemblance to impetigo contagiosa gyrata and impetigo contagiosa. The high temperature may produce greater activity and account for minor differences. A few culture experiments would decide the point.

### FURUNCULUS.

(Latin for boil, diminutive of *fur*, a thief.)

*Synonyms*.—Boil, furuncle; *Fr.*, Furoncle; *Ger.*, Furunkel, Blutgeschwür.

*Definition*.—An acute, circumscribed, phlegmonous inflammation round a skin-gland or follicle, resulting in its necrosis and suppuration.

*Symptoms*.—In this familiar affection the lesion may be single or multiple, in the latter case, coming in crops of from two to half a dozen or so, and no sooner have these got well than a fresh crop appears, and keeps up the process of what is

termed "furunculosis," for weeks, months, or years, if untreated. The boils do not form any definite group, but are isolated and scattered over the same, or widely separated regions.

Each boil begins as a painful induration in the skin, soon followed by a red spot or pit, which feels like a firm disc or shot-like body embedded in the corium. As it enlarges, it becomes raised above the surface, and gradually forms a convex swelling, with a tendency to point, and when fully developed is from a small split pea to half a plum in size, of a deep red, with or without a yellow center, while at the periphery the color is brighter, with red areola. The center softens, gives way, and from the opening, pus, and a piece of whitish, pultaceous, necrotic tissue called a "core," are discharged, though not infrequently this core may require a day or two longer for complete separation. Up to the time of evacuation there is a burning and throbbing pain, especially at night, quite out of proportion to the size of the boil, while the tenderness is so great as to be proverbial. All this is relieved at once by the discharge; the indurated, infiltrated tissue gradually softens, and is absorbed; the swelling subsides; the redness fades; the cavity fills up by granulation, and leaves more or less of a scar. Or the tumor may stop short of suppuration and resolve, constituting what is popularly known as a "blind boil." Constitutional disturbance is often present in proportion to the number and size of the boils, and the lymphatics and glands in the neighborhood are liable to sympathetic inflammation, going on sometimes even to suppuration.

Such is the history of furuncular inflammation in a sebaceous gland or hair follicle; and, while no part of the body is exempt, boils occur chiefly in the neck, face, forearms, buttocks, and legs.

According to Sabouraud, Bockart's impetigo is always the precursor of furunculosis, but this is too sweeping an assertion. Superficial pustules often precede, and are constant concomitants of crops of boils, but boils may develop without such antecedents.

*Variation.*—When the furunculus begins in the sweat coil, it constitutes what Verneuil described as *hydrosadenitis phlegmonosa*. Contrary to the view put forward in the second edition of this work, I now consider Verneuil's *hydrosadenitis dif-*

ferent to that of Pollitzer, which is described with *acne agminata*, which is the same as the *acnitis* of Barthélemy.

It is most frequent in the axillæ and fork, and all about the genito-anal region, near the nipples, the arms, and sometimes the face and neck, and may form wherever there are sweat glands, except on the soles. It is very like the ordinary form of boil, and, like it, there may be only one or two, or a crop. But at first it is subcutaneous, and only involves the skin as it nears the surface; it has no mattery head, and there is less induration and not much pain. It is ascribed to local irritation, but in my experience is connected with hyperidrosis. It is said to be more common in young people, but in two of my patients it came on at the climacteric. A lady\* of sixty-five, whom I saw with Dr. Duncan Greig, had been subject for twenty years, dating from her climacteric, to suppurating lesions like boils, but without the induration of ordinary boils. They occurred symmetrically in the axillæ, the cleft of the anus and fork, but not in front, and to a slight extent in the bend of the elbow, at the root of the neck, and between the breasts. When one came on one side, before long another matched it on the other. In all the regions affected there was pigmentation of a lentiginous character, numerous sinuses, and considerable scarring. When I saw her she had only one recent, superficial, inflamed, and boggy tumor the size of a split pea, without induration, and a puncture gave exit to a little sanious pus. There were older soft swellings about the gluteal cleft, which also contained pus. The recent ones were tender, the older were not. She sweated profusely. There was no organic disease, but she took no exercise.

*Etiology.*—Ordinary boils, when single, are usually dependent on local injury, such as blows, friction, or pressure, *e. g.*, on the buttocks of oarsmen, in prolonged decubitus from any cause, etc. When in successive crops, they are often predisposed to, at least indirectly, by vitally depressing influences, sometimes of a septic character. Thus they occur in diabetes mellitus, after various specific fevers, especially variola, and in anemic, lithemic, uremic, and septicemic states. Of external causes, sewer-gas poisoning is the most potent. There is, however, strong reason to believe, as will be seen in discussing the

\*Mrs. C. Private notes, E., p. 130.

pathology, that the above conditions merely offer a favorable opportunity for the development of the *mat ries morbi*. In not a few instances no defect of health can be detected, and there is a popular notion that too good living is responsible. The late Mr. Startin proved that they were auto-inoculable by scratching; that the pus was inoculable, *e. g.*, by a contaminated lancet, boils occurring at the seat of puncture; and that even prolonged contact, as by the occupation of the same bed, was sufficient for their conveyance.

Boils are a common complication in pruritic eruptions, such as eczema, prurigo, scabies, etc.

*Pathology.*—According to Kochmann, boils always begin round the hair follicles or the glands, but to these Verneuil has shown we must add the sweat glands, and it is now established that the inflammation is set up by microbes which gain entrance through these channels. According to Pasteur, whose observations have been confirmed by Loewenberg, Gilchrist,\* and others, micrococci, which are now known to be chiefly, if not entirely, staphylococcus aureus, less frequently albus and citreus, can always be found in the contents of boils, and cultures from this are inoculable; but abscesses, not furuncles, are produced in animals. Guigeot accounts for this by the culture being introduced into the cellular tissue, instead of limiting the inoculation to the sweat ducts or follicular orifices. Loewenberg suggests that when once a boil has formed, the microbes may be transferred by auto-inoculation, and also that they may get into the circulation and that the crops of boils are kept up in this way; but if this is so, it is strange that the process should always be limited to the skin glands and follicles. In order that these organisms should flourish, it is admitted that the soil must be suitable, *e. g.*, that there should be a predisposition on the part of the patient, and this is found in the various debilitating influences mentioned under Etiology. The mechanism of the process is supposed by some to be that the vessels round the gland or follicle become blocked, producing its death, and inflammation is then set up round the necrosed tissue to get rid of it by suppuration. In aural

\*Vol. xiv., *John Hopkins Hospital Reports*. Gilchrist examined twenty cases at all stages, and invariably found in pure culture staphylococcus aureus. They were present as diplococci in the pus.

furuncles \* the organism most frequently found was staphylococcus albus, next to this *S. aureus*, and sometimes *S. citreus*. Kirchner of Wurzburg found *S. albus* only. These organisms have not yet been demonstrated in sweat boils.

*Diagnosis.*—The disease is so well known that the patient usually makes the diagnosis himself. The peculiarities of sweat boils have been already pointed out. The differences from a carbuncle are given with that disease.

*Prognosis.*—When occurring in crops the disease often gives much trouble, but perseverance in the method to be mentioned will be rewarded with success, though it is impossible to predict how long it will last. When dependent upon some serious general condition boils are often numerous, and aggravate the depression of health already present by the suffering and worry they occasion.

*Treatment.*—The first thing is to investigate the general condition of the patient, examine the urine both for albumin and sugar, and see if there is any defect in the health, habits, and surroundings which will account for the disease. Among these defects drainage and water supply are to be specially looked into, and in such cases, and in many others, change of air is often necessary. Unless the patient is gouty, tonics and nutritious diet are generally indicated, and ferruginous aperients (Mixtures, F. 16), are adapted to a large number of cases. Although the following internal remedies are to a certain extent useful, early local disinfection is the most efficient means of preventing constant recurrence, and if the circumstances of the patient allow of its being efficiently carried out, the boils will soon cease to form.

Supposing every attention has been paid to the general health, one or other of the following remedies has frequently been successful in my hands, viz.,\* fresh yeast, half a wineglassful to be taken night and morning, or a less quantity more frequently. This is a popular and good remedy, though its *modus*

\* Loewenberg, Internat. Med. Cong. 1887.

† Brocq, evidently unaware of its being so well known and used in England, rediscovered it in 1894 as a cure for boils and strongly advocates its use. He says that no publication between 1852 and 1894 occurs about it, whereas it is mentioned in the above terms in my first edition in 1888, and was then "as old as the hills."

*operandi* is not clear, unless we suppose that the yeast organism has the power of appropriating some pabulum necessary for the existence of the furuncle organism. Another remedy is that proposed by Ringer: one-tenth of a grain of sulphid of calcium every two or three hours, or one-fourth of a grain three or four times a day. As the sulphid speedily decomposes and becomes inert on exposure to the air, it should be prescribed in coated pilules. In cases due to sewer-gas poisoning large doses of quinine are requisite.

*Locally.*—Every boil is a fresh nidus for the cultivation, and a center for the subsequent dissemination, of the cocci which produce the lesion; if, therefore, the cocci in each boil are destroyed as soon as possible, the supply will thus be exhausted, and fresh boils soon cease to appear.

Both theory and practice forbid the time-honored plan of poulticing, and all hot wet dressings, unless antiseptic, are equally calculated to favor the development of further boils. After disinfecting the cavity, ten grains of iodoform to 3j of boric acid ointment is a good dressing to a freely discharging boil, the cavity being daily syringed out with the carbolic solution. The treatment I adopt is to open each boil as soon as there is softening of the center, syringe it out with 1 in 40 carbolic acid, and put in the strong liquid or the crystals into the cavity.

The boils should not be opened in the hard stage, and when they are discharging they should not be squeezed. A small boil roughly handled is easily converted into a large one.

To abort them, an almost certain plan is to inject beneath the boil five drops of a 1 in 30 solution of carbolic acid.

Guigeot strongly recommends that spirit of camphor should be applied for a few minutes at a time, by means of a compress dipped in it three or four times a day; or tincture of iodine painted on freely three or four times a day, over and beyond the furuncle, until desquamation occurs. Loewenberg recommends a saturated solution of boric acid; this plan is a good one, and even when it does not stop it will limit the amount of suppuration. Other means to abort boils are caustics, nitrate of silver, nitrate of mercury, strong carbolic acid, and nitric acid painted on.

For sweat-gland boils painting with collodion is simple and

effectual for slight cases. Disinfection in the same way as ordinary boils is often necessary, and the hyperidrosis should be treated (see that disease). In the case of the lady with the sweat boils previously described I got Dr. Greig to open up the sinuses and thoroughly disinfect them, and every fresh boil as soon as possible, and in three months she was completely cured of the affection which had gone on for nine years.

## CARBUNCULUS.

(Dimin. of *carbo*, a live coal.)

*Synonyms.*—Anthrax,\* Carbuncle; *Fr.*, Anthrax; *Ger.*, Carbunkel, Brandschwär.

*Definition.*—An acute phlegmonous inflammation, circumscribed but more extensive than the furunculus, terminating in a more or less extensive sloughing of the tissues, and gangrene of the superjacent skin.

*Symptoms.*—The carbuncle is allied to, but is a much more serious affair than the boil, and when extensive, or in elderly or cachectic subjects, may have a fatal termination. Unlike the boil it is usually single, and favors the extensor aspects, especially the neck, shoulders, back, buttocks, and forearms.

A firm, flattish, inflammatory infiltration forms in the subcutaneous tissue or deep part of the corium, and extends vertically and laterally; the surface is of a bright red, soon getting deeper-tinted, and there are pain and burning from the first. In ten days to a fortnight it is fully developed, and then consists of a deeply seated, flatly convex tumor or circumscribed infiltration of a deep and livid red color and with a hard, characteristically brawny base, gradually merging into the surrounding tissues. Softening of the center of the mass and of the skin soon takes place, but there is no pointing, the

\* It is, I think, preferable to employ the term carbunculus instead of the more common one of anthrax, as that term is ambiguously used, sometimes meaning the affection under consideration, at others malignant pustule or the local manifestation of splenic fever, but the well-known name bacillus anthracis is exclusively applied to the splenic fever organism.

skin being covered with pustules, and simultaneously giving way at several points, forming numerous cribriform perforations, through which sanious pus exudes. And the slough is visible and is slowly separated, either entire or in parts, and gradually comes away through the enlarged openings, leaving a deeply and irregularly excavated ulcer, with firm, sharply cut, everted edges; the cavity fills up with new granulation tissue, and forms a cicatrix, often pigmented, and perhaps puckered, but smaller than might be expected from the size of the original sore.

*Variations.*—Sometimes, when at its acme, the skin over it becomes bluish-black and gangrenous, a blood-filled bleb is formed, or the whole skin breaks down into a dirty, pulpy mass; or instead of moist, there is dry gangrene, the whole of the dead tissue drying into a hard brown or black eschar, which separates in the usual way. Or, again, the process may extend, the central changes being repeated at the periphery, with copious and exhausting suppuration. The general disturbance is considerable. Rigors, elevation of temperature, general aching, and other febrile symptoms, varying according to the extent of the lesion, are present in all but the smallest carbuncles. Where there is extensive sloughing septic fever is often developed. The duration is then from two to six weeks, according to the age and vital powers of the patient and the size of the carbuncle, which may be as large as a soup plate; the most common size, however, is from one to three inches.

*Etiology.*—It occurs more often in men than women, and in middle and old age. It is most common in those who are suffering from constitutional depression from causes similar to those of furunculosis. It is a not unusual complication of diabetes, and its favorite positions suggest that its site is often determined by a local injury from pressure or otherwise, but this has not been definitely proved.

*Pathology.*—The generally received view is that the process is clearly analogous to that of the furunculus, due to the same staphylococci, but the process lies deeper. Though, like the furunculus, it is said to begin in the sebaceous and sweat glands and hair-follicles, it goes down into and travels along the planes of the subcutaneous tissue, as it has not the lateral limitations of the boil, but vertically is bounded by the fascia.

Collins Warren \* of Harvard University, however, explains it as follows: The process begins in foci of inflammatory cells in the subcutaneous tissue; these coalesce and extend up the columnæ adiposæ, which swell, elongate, and disintegrate, the cells eventually reaching the surface and forming a pustule round the hair-follicle; laterally, the inflammation spreads along the lymph channels and vessels that branch off from these fat columns, so that the whole mass of the corium becomes involved in the destructive inflammation, except a thin superficial layer which lacks the channels present so abundantly below. Those of the pustular points visible on the surface which are not seated at the hair follicle are collections of wandering cells, dilating the papillæ into peg-top-shaped cavities, and thinning the rete over them until it gives way. The same process extending subcutaneously, the infiltration becomes so dense that the blood-vessels are pressed upon, and all the tissues break down except the more persistent fibrous bands which bind down the integument in the back, and which remain at the bottom of the cavity and form the well-known tough, adherent sloughs.

Thus, in Warren's view, a carbuncle is primarily a suppuration in the subcutaneous tissue, and secondarily infiltrates the corium by channels which only exist where it is thick, and where there are rudimentary or lanugo hair follicles, which do not reach down to the fat. In parts where the skin is thin these columns do not exist; the cribiform appearance is not developed, the pus oozing out at one or more less resisting spots, traveling along a lymph space to reach the papillæ.

While pus organisms were not known to Warren as the primary cause, his explanation of the subsequent mechanism of the process is not invalidated.

*Diagnosis.*—The carbuncle is distinguished from the *furuncle* by its much greater size, its flatter shape, its brawny border, and, when it is breaking down, by the multiple instead of the single opening and the complete destruction of the skin over the sloughy tissue beneath; from more *diffuse phlegmonous inflam-*

\* "Columnæ Adiposæ, with their Pathological Significance in Carbuncles and Other Affections." A small monograph. (Cambridge, U. S., 1881.)

*mations*, by its circumscribed brawny border, the greater painfulness, and the cribiform perforations.

*Prognosis.*—This depends upon the age and general health of the patient and the size and course of the carbuncle. As at the commencement it is impossible to predict the size and course, the prognosis must be guarded; especially must this be the case in old people and those broken down by disease, *e. g.*, diabetes. Those on or near the head and face are considered to be more serious than the others.

*Treatment.*—As in furunculosis, careful investigation into the patient's general health, especially as regards diabetes, is an important preliminary, and a supporting treatment is generally advisable from the first. Alcohol in any form, however, is better avoided, at all events until the contents of the carbuncle have been evacuated, as it is liable to increase the tension, and therefore the pain of the inflammatory swelling. When, however, it is opened, and there is free suppuration, alcohol, preferably, as a rule, in the form of port or burgundy, may be required. Perchlorid of iron in full doses (3ss of the tincture or liquor every four hours) is often very valuable, and where there are any signs of septicemia, quinine in full doses (gr. 5 or even gr. 10 of the hydrochlorate every four hours) often acts most effectually. Care must be taken to obtain sleep, if necessary by anodynes, hypodermic injections of morphia (1-6 to 1-4 gr.) being one of the best forms. Chloral hydrate is indicated only when the pain is moderate. Every possible means must be adopted to improve the general condition and surroundings.

Locally, the old classical treatment of linseed poultices and crucial incisions is abandoned by general consent, and boils are likely to be excited in the neighborhood of the carbuncle by poulticing. The only applications of this class at all permissible are boric acid lint wrung out in hot water, or compresses formed of pads of Gamgee tissue wet with hot carbolic solution 1 in 40 and covered with oiled silk.

If the carbuncle is seen in an early or spreading stage a solution of carbolic acid 1 in 30 should be injected subcutaneously all round the carbuncle. This, if done thoroughly, almost invariably stops the extension. Hot compresses of carbolic solution may also be applied over it. As soon as there is softening the purulent contents should be evacuated, the cavities

thoroughly syringed out as far as possible with carbolic lotion 1 in 40 and crystals of carbolic acid pushed into all the openings. Sloughs as they become loosened should be removed as soon as possible, and it has been recommended not to wait for loosening, but to scoop them out with a sharp spoon or cut away as much as possible. This is the best plan for small sloughs, but with large ones may be attended with serious bleeding not easily controlled, and in these it is best to keep on introducing strong carbolic acid until the septic process has terminated. Rushton Parker recommended early excision of the whole lesion, but few patients will consent at this stage to an operation of this kind. Mercurial plasters, such as No. 88 Beiersdorf, assist in removing the brawny induration.

## HERPES.

*Deriv.*—*ἑρπης*, a creeping.

The meaning of this term has much changed. As its derivation indicates, it was originally applied to creeping eruptions, but not always of the same kind; thus one set of authors applied it to spreading surface eruptions, as ringworm, or herpes circinatus et tonsurans, terms still in use in this sense in some parts of the Continent. Others used it to designate lupus exedens and spreading cancer, but this use for it is quite obsolete. Many older French writers, such as Bazin,\* or Gigot-Suard,† considered a great number of eruptions of various kinds to be due to a diathesis which they call “Herpétisme” and formed such eruptions into the class “Herpétides”; as these views no longer meet with acceptance even in France, they need no further consideration.

In the modern and general acceptance of the term, herpetic eruptions are characterized by the presence of one or more groups of vesicles on an erythematous base. Even this clinical

\* Bazin's “Affections cutanées, arthritiques et dartreuses,” 2d ed. (Paris, 1868).

† “L'Herpétisme. Pathogénie, Manifestations, Traitement, etc.” (Paris, Baillière et Fils, 1870.) Also Lancereaux, “Traité de L'Herpétisme” (Paris, 1883); and Besnier's critique on it, *Ann. de Derm. et de Syph.*, vol. v. (1884), p. 530.

definition includes eruptions of very different pathology, such as herpes iris, whose relations are with exudative erythema, under which it is described; and dermatitis herpetiformis, which is sometimes called herpes gestationis.

In this work three diseases only are classed under herpes:

HERPES ZOSTER;

HERPES FEBRILIS (FACIALIS OR LABIALIS);

HERPES PROGENITALIS OR PREPUTIALIS.

They are all admittedly of neurotic origin, but while in H. zoster the groups are multiple, and follow the course of the cutaneous branches of a nerve ganglion, and as a rule the patient is attacked only once, in the other two recurrence is the rule, no nerve distribution can be made out, and there is often only one group.

### HERPES ZOSTER.\*

*Synonyms.*—Shingles; Zona; Zoster; Ignis sacer; *Fr.*, Zona; *Ger.*, Feuergürtel, Gürtelausschlag, Bläschenflechte.

*Definition.*—An acute inflammatory eruption, consisting of groups of vesicles on an erythematous base, distributed in the course of the nerve fibers in the domain of one or two posterior root ganglia.

H. zoster is a more common disease than is shown by dermatological statistics; my own give 6 per 1000. H. Head at the London Hospital found it to be 1 in 418 medical cases of all kinds. The discrepancy is explained by its being an easily recognized disease which runs a short course, and therefore seldom finds its way to a dermatologist.

Although many qualifying terms have been employed to

\* *Literature.*—Author's Atlas, Plates XV. and XVI., shows zoster of the trunk and limbs, of different degrees of severity, and of the ophthalmic division of the fifth nerve. Of the latter also an excellent plate is No. VIII. of the Sydenham Society's Atlas. Kaposi's Hand Atlas, Plate CII., shows severe attack affecting first and second divisions of fifth, and Plate XCIII. bilateral herpes of two divisions of fifth. Dr. Sykes of Exeter points out that Zoster is derived from the Roman "Zooster," which consisted of a bronze portion with studs, which reached *half* round the body, the girdle being completed with leather.

designate the locality of the eruption, there is only one kind of zoster, as far as the eruption is concerned, but the nerve lesion, of which it is the immediate outcome, may be idiopathic or secondary to previous disease.

*Symptoms.*—The idiopathic form is by far the most common, and is in some cases preceded by prodromal febrile symptoms of an indefinite character and uncertain duration, but commonly all that is observed is slight or severe neuralgia, in the lines of the ensuing eruption, usually preceding the eruption by a few hours to several days, generally, but not always, relieved on the appearance of the eruption, which is, however, attended with tingling and smarting. The eruption commences with the formation of groups of closely set acuminate papules, which speedily become vesicles, irregularly arranged on an erythematous base.

*Distribution.*—In a previous edition of this work it was pointed out that the eruption did not correspond with a single nerve area on the trunk, but that fibers of more than one nerve probably passed through a single nerve ganglion, and hence widened the area of the eruption. To Head, however, belongs the credit of having conceived the idea of utilizing zoster to find out the posterior root zones, and he with infinite pains observed the distribution of over four hundred cases of zoster, and from these mapped out approximately the areas under the domain of the different posterior root ganglia, and the diagrams thus constructed he has kindly allowed me to reproduce. Various circumstances, as Head points out, modify the position of the vesicular groups in different cases. Thus, on the one hand, only part of a ganglionic area may be attacked, and on the other, more than one ganglion may be involved, and two root areas comprehended in the eruption; this is especially likely to occur in the ganglia of cervical 2 and 3 or 3 and 4. The apparent position of the eruptive groups would be different in a barrel-shaped chest as compared to a long narrow one, the nipples and umbilicus being the only safe landmarks.

The nerve fibers of adjacent nerves may be differently distributed in the ganglia in different cases, and their peripheral extension may vary; thus they may extend over the middle line or to varying distances along the limbs.

The main point to be borne in mind is that distribution is

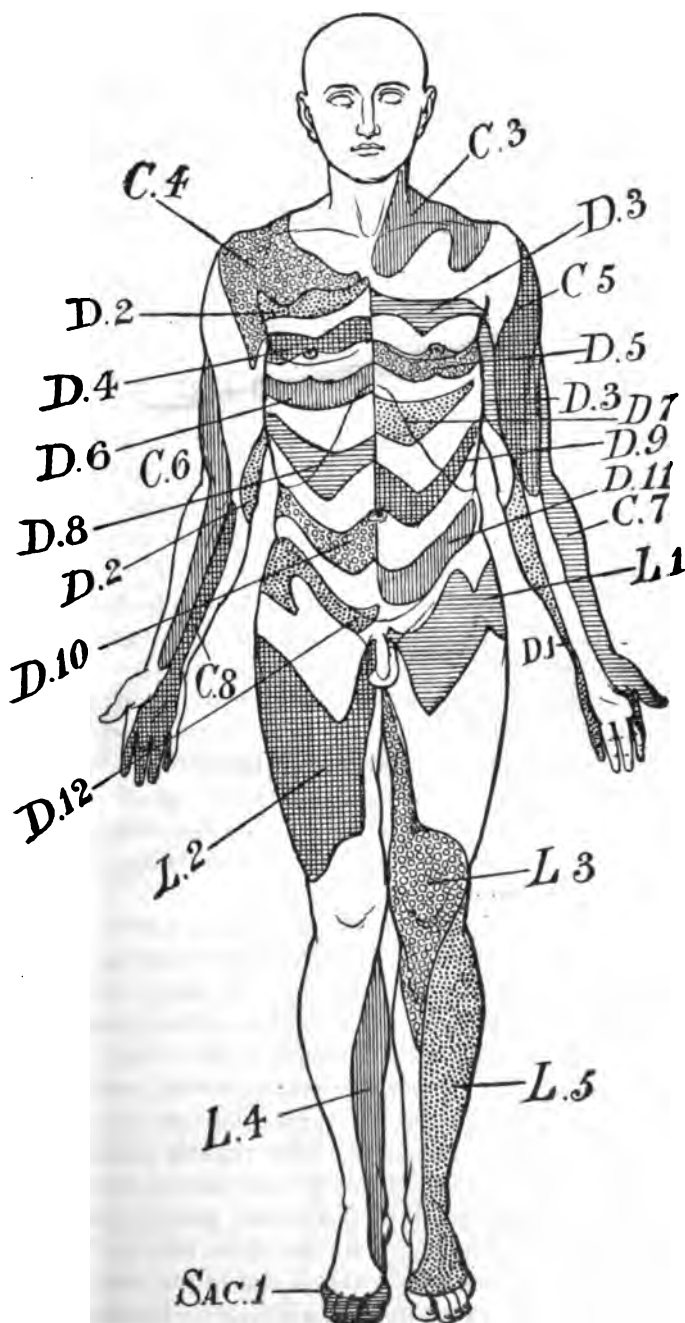


Fig. 16.\*—Diagram, according to H. Head, to show the areas occupied by the eruption of Herpes Zoster (front view).

\* Copied by permission from "The Pathology of Herpes Zoster," by Henry Head and A. W. Campbell. From *Brain*, autumn part, 1900. Reprint by John Bale & Co, London.

governed by posterior root ganglia zones, and not by single nerve areas.

The typical form which gave rise to the distinctive names which signify a "girdle" affects, therefore, the domain of a *posterior root ganglion* of one of the *dorsal* nerves, hence the eruptive groups are nearly horizontal on the thorax instead of following the slope of the ribs, as a single intercostal nerve does.

The eruption is unilateral; the groups come out successively, the first formed being nearest the nerve center as a rule; and the eruption, as a whole, occupies from three days to a week before it is completely developed. The groups often correspond with the position where the cutaneous branches pierce the fascia or are distributed in the skin, and there is often tenderness, as Parrot pointed out, in these positions.

In an intercostal herpes one group is situated near the spine, another in the axillary region, and a third close to the median line anteriorly, but sometimes a group fails to be developed or remains papular, or there may be more than one group in each region, but the half-girdle is seldom continuous. The vesicles vary in size from a pin's head to a pea, or larger when confluent, and in number from half a dozen to a score in each group. The contents are at first clear, but soon become turbid, and in a simple case soon dry up into scabs, which fall off in a few days, leaving red marks which take somewhat longer to disappear. The whole process, up to the falling off of the scabs, lasts from ten days to three weeks.

*Variations.*—In a few cases the prodromal febrile symptoms are very decided, but not distinctive, their meaning being unintelligible until the eruption appears. In many cases, on the other hand, the eruption is the first sign of the disease.

*H. zoster* is by no means confined to the trunk, as Willan thought, calling the eruption when occurring elsewhere *H. PHLYCTENODES*, though the trunk, especially on the right side, is more often affected than all the other regions added together. It may attack the domain of almost any nerve, though it has preferences. On the head the Gasserian ganglion is involved, and areas corresponding to branches of the fifth are frequently affected, especially the supra-orbital, and in this case the eruption extends on to the scalp, as it also does when the occipital nerve is attacked.

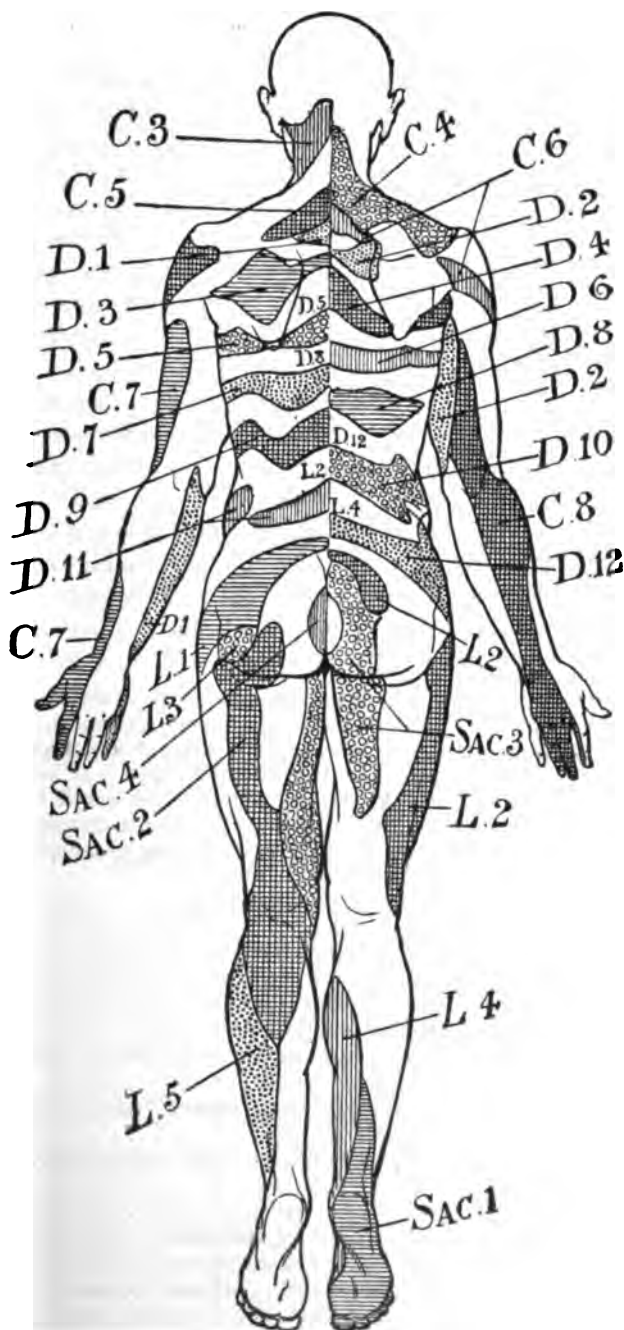


Fig. 17.—Zoster areas, after H. Head (back view).

Sensory areas of the neck, arm, less frequently the forearm and hand, the buttock, genitals, thighs, and other regions, are from time to time affected, and sometimes it may be two neighboring regions, such as the neck and arm, trunk and arm, genitals and thigh, etc., but it is rare for it to attack two distant regions such as the forehead and trunk, on the same or opposite sides as in Hutchinson's and Bradshaw's cases.\* It is rare below the knee and very rare on the foot, except when it affects the line of the saphenous nerve, when there may be vesicles on the heel.

Names have been given to designate herpes of these regions, and so authors speak of *H. frontalis*, *ophthalmicus*, *cervicalis*, *brachialis*, *cruralis*, *genitalis*, *cervico-brachialis*, *intercosto-humeralis*, *genito-cruralis*, and so forth. The only difference is in the positions, but of course the eruptive groups are in lines, not in zones, since they follow the nerve ganglia distribution. Head † contends that *zoster* or *zona* should always be affixed to distinguish it from *herpes febrilis*.

\* *Lancet*, October 13, 1894. p. 851.

† H. Head carefully noted the distribution of 36 cases of *zoster*, which he collected in different parts of University College Hospital. These he was kind enough to place at my disposal, and adding them to 64 of my own, the result of the hundred cases was as follows: Trunk, 54 cases; ilio-inguinal, ilio-hypogastric, and genito-crural, 13; cervical, 13; fifth nerve, 8; leg, 8; arm, 3—febrile herpes was not included. In his monograph he gives the following distribution of 414 cases according to the ganglia affected.

Trigeminal		5th Dorsal	38
1st Division	18	6th "	20
2d "	2	7th "	19
3d "	2	8th "	36
	—	9th "	19
Total Gasserian ganglion	22	10th "	26
2d Cervical	1	11th "	22
3d "	15	12th "	18
4th "	21	1st Lumbar	27
5th "	2	2d "	22
6th "	3	3d "	5
7th "	5	4th "	1
8th "	0	5th "	2
1st Dorsal	5	1st Sacral	0
2d "	9	2d "	1
3d "	34	3d "	5
4th "	38		

He infers from this table that the ganglia most commonly affected are

Herpes is very rarely symmetrical,\* and then is said to be generally of syphilitic origin, and chiefly affects the fifth pair. † Jamieson ‡ of Victoria records a case of a woman who four days after severe headache and vomiting had also shooting pains in chest and shoulders, and a symmetrical zoster faciei, nuchæ et brachialis. G. Carpenter § also records a case of a child of four with double zoster at the same level. It must be remembered that some cases of extensive H. febrilis of the face are easily mistaken for double zoster. || It may occasionally be bilateral, affecting nerves at a different level, and it is common for some of the vesicles to overstep the middle line, doubtless because a cutaneous nerve twig has extended farther than usual. Hemorrhage sometimes occurs into the vesicles, or the inflammation may be so intense as to be purulent from the first, and in rare instances the patches may ulcerate, or even become gangrenous. Scarring, of course, then ensues, and keloid may follow. Zoster, as a rule, does not attack the same person more than once in his lifetime, but there are exceptions; one of the most notable was Kaposi's case. ¶ Within a short space of time there were five attacks in the right cervico-brachial region, later on a sixth attack in the right lumbo-sacro-crural region, whilst the seventh, eighth, and ninth outbreaks were in the left cervico-brachial region, and there have been two abortive attacks since.

Tilbury Fox had a patient who had several attacks in the

those which receive afferent impulses from the viscera, through the white ramus of the sympathetic. He also says that the ganglion cells are in two groups of large and small cells, and that the ganglia in which the small cells preponderate are the most frequently attacked. One of the functions of these cells is the perception of pain, and he thus explains the frequent severe pain of zoster, but he does not account for its frequent absence.

\* Hence the popular idea, as old as Pliny the Elder, that if it encircles it kills.

† A case of this kind is figured in Hebra's Atlas, vol. ii., Lief. vi., Tafel ix.

‡ *Australian Med. Jour.*, May, 1877.

§ *Brit. Jour. Derm.*, vol. iv. (1892), p. 23, with reference to other cases.

|| Testut (*loc. cit.*), p. 74, collected thirteen cases of double zoster, but some were certainly H. febrilis.

¶ Abstract from *Wiener med. Wochenschrift*, 1874, 1875, and 1877, in *Med. Rec.*, November 15, 1877.

course of a few years, and always in the summer. Chronic peripheral irritation is the most usual cause of such repetitions. Thus I have seen recurrent herpes round the sinus produced by a diseased tooth. Pearce Gould had a similar case from caries of a rib, etc. Pernet reports a case with four attacks, one intercostal, the other three on the right side of the neck, and he suggests that an uncorrected error of refraction was the cause.

Grindon \* collected sixty-one cases of recurrent zoster.

*Complications.*—Iritis and more or less severe conjunctivitis is apt to accompany herpes of the ophthalmic division of the fifth, especially, but not exclusively, when the nasal branch is affected, and in one case hypopion keratitis occurred (Flemming), and in another retinal hemorrhages. Severe scarring is also a frequent sequel to this form of herpes. When the second branch of the fifth is involved patches of herpes may also develop on the buccal mucosa, palate, tonsil, and tongue on the same side, and Stephen Mackenzie once found at a post-mortem herpes in the pharynx and esophagus. The teeth on the affected side sometimes fall out, and even necrosis followed in Paget's case.† True pharyngeal zona is unilateral and seldom recurs. Most of the bilateral pharyngeal herpes are frequently recurrent, and are really herpes febrilis.

Occasionally the function of the neighboring motor nerve ‡ has been interfered with, this being most frequent in facial H. zoster, where paralysis of the third or seventh sometimes ensues. Vernon, Broadbent, Waren Tay, and Voigt have also reported a similar association. Howard relates a case of ophthalmic herpes with iritis followed by ptosis; and Silcock has had two cases of complete ophthalmoplegia, externa and interna, following H. ophthalmicus. Paralysis of the seventh is especially liable to occur when the zoster affects the occipi-

\* *Amer. Jour. Cut. and Gen.-Urin. Dis.*, vol. xiii. (1895), pp. 191 and 252. Some other cases in annotation of *Lancet*, April 12, 1902, p. 1050.

† *Brit. Med. Jour.*, vol. ii. (1866), p. 402.

‡ *Brit. Med. Jour.*, August 6, 1870. Waller of Amsterdam, quoted in *Brit. Med. Jour.*, September 19, 1885, relates two cases, one of paralysis of the seventh and another of that supplying the deltoid, following zoster of those regions. Both recovered under electricity. Other cases are on record.

tal region or front of the neck, *i. e.*, second cervical. Eichhorst collected eighteen cases (Head). There is loss of faradic excitability of the facial muscles. Besnier relates the case of a student who, while studying a case of ophthalmic herpes, was himself attacked, and permanent facial paralysis ensued. Head saw a case where zoster over the first dorsal area was accompanied by paralysis of all movements of the hand and fingers.\* J. Duncan † records two cases of old women in whom H. zoster was accompanied by hemiplegia of short duration, and probably, therefore, of vaso-motor origin. Weiss reports a symmetrical zoster affecting branches of the median, recurring at intervals and producing trophic disturbances of the skin and nails supplied by the median nerve, and "thumb clonus," *i. e.*, a tremor, lasting a quarter of a minute, excited by sharp flexion of the palm, and ceasing with extension of it.

Although the neuralgic pain usually subsides when the eruption is out, and may even be absent altogether, sometimes, owing to a chronic neuritis having been set up, the pain persists, and in old people, in whom it is specially liable to occur, becomes of serious moment from exhaustion consequent upon the pain and loss of rest.

In a few cases persistent pruritus, hyperesthesia or anesthesia, and in a case of Schwimmer's white patches, were left in the area of the affected nerve; and Barthélemy and others have noted cases of pre-eruptive or simultaneous enlargement of the glands in the neighborhood of the zoster, and argue from this against the primary nerve origin of the disease.

Tenneson, Jeanselme, and Leredde draw attention to the occurrence of "aberrant vesicles" scattered about at a distance from the principal groups, but generally on the same side of the trunk. Féré and Girandau have also recorded cases, and the occurrence of these vesicles is used as an argument in favor of zoster being a general rather than a local disease. Tenneson ‡ says that daily examination of the whole skin in a case of zoster

\* This he explains by the intrinsic movements of the hand being innervated by the motor part of the first dorsal root with that of the eighth cervical.

† *Jour. Cut. Med.*, vol. ii. (1868), p. 241.

‡ References to cases may be found in *Lancet* annotations, September 24, 1898, p. 822, and October 27, 1900, p. 1223.

would show these vesicles in nine cases out of ten. My own observations, since my attention has been drawn to the point, tend in the same direction.

*Children.*—The affection is more common in children than in adults, and in girls than boys. The pain is never persistent, as in the aged, but the inflammation is more frequently intense enough to produce suppuration and gangrenous ulceration. In a boy of four, observed by J. Deas, the gangrene was so extensive as to lead to septic absorption and death of the child. The region of the fifth nerve is seldom affected, except in the form of febrile herpes.

*Etiology.*—In my practice three-fourths of the cases were under twenty, and two-thirds of these under thirteen years; nearly all the rest were over forty. Head's statistics emphasize the same fact—viz., the prevalence in childhood; and three-fourths of all these cases were under twenty-five.

It is rare in infants, but Bohn records two cases, æt. five and seven months respectively, and Lomer records one in an infant of four days old. There is no limit at the other end as to the possibility of its occurrence; but while old age is not a factor as regards frequency, it is as regards the severity of the attack.

Sex appears to have no influence. One hundred and twenty males to 105 females, and 104 right-sided to 93 left (Harrison). There is a fairly general consensus of opinion that chills are a frequent exciting cause, and the possibility of atmospheric influences is favored by the frequent occurrence of cases in groups. Hence some, like Erb and Landouzy, regard it as an acute specific and infectious disease, and hypothetical microbes have been invoked to the aid of the hypothesis, which is also supported by Kaposi\* on the following grounds: that it generally occurs in small epidemics, recurring irregularly, but especially in spring and autumn; that it is very unusual for a person to be affected twice; that the various epidemics exhibit various types, some in which all the cases are slight, while in others they are all severe, to which he might have added the definite course of the disease. Kaposi presupposes a toxic influence on the nerve centers. Even if this hypothesis be accepted for these groups of cases, it leaves many sporadic cases

\* Kaposi, *Wiener med. Wochenschrift*, Nos. 25 and 26 (1889). *Abstr. Brit. Jour. Derm.*, vol. ii., January, 1891.

traceable to definite causes, so that epidemic influence should only rank as one of the etiological items. Thus the occurrence of zoster in persons taking arsenic,\* first pointed out by Hutchinson, of which several instances have come under my own observation, have been noted sufficiently often to point to an etiological relationship, not inexplicable, since arsenic acts on the peripheral nerve ends, and peripheral neuritis is sometimes one of its toxic symptoms; an exciting cause, such as a chill, is perhaps necessary also. Sattler reports a case from coal gas, and Leudet from carbonic oxid poisoning, possibly due to a toxic neuritis.

Severe mental emotion† has appeared to be the exciting cause in a good many cases.

It occurs frequently in epidemic cerebro-spinal meningitis and also in cerebral meningitis from other causes, and is then usually bilateral; but it is said to be more common in non-tubercular meningitis. At the same time it is not infrequent in tubercular subjects (Leudet, Barié, Leroux, etc.), and in ataxics (Charcot, Fournier, Buzzard, etc.). Various mechanical peripheral nerve irritations are noticed in the next section as exciting causes. Probably Touton's case, in which an abortive herpes followed the intra-muscular injection of salicylate of mercury, was from that cause, rather than from the nature of the drug. Severe mental emotion has appeared to be the exciting causes in some instances.

Herpes has occurred in several instances as the result of contusion or other lesions of the terminal nerve filaments, such as on the cheek and eyelids following a blow; lumbo-abdominal herpes after a strain; of the forehead, eyelids, and cheek, in one case, and right upper dorsal and intercosto-humeral in another case (Pernet) after tooth extraction. Gaucher and Bernard observed three such cases. Bókai relates several cases in which an apparent zoster communicated

\*Nielsen found that of 777 cases of psoriasis 557 were given arsenic, and among them 10 cases of zoster occurred, *i. e.*, 1.8 per cent., while not one case occurred in the 220 who received no arsenic and were treated with large doses of iodid of potassium. It was frequently noted in the Manchester outbreak of arsenical poisoning from beer contamination in 1900-1901, and was one of the symptoms which led to the detection of arsenic as the cause

† A. Roche, *Lancet*, October 13, 1894, p. 857, relates and quotes a case.

chicken-pox; the suggestion offered is that the apparent herpes was really a varicella with a circumscribed zosteriform distribution, or it might be they were cases of unusually abundant aberrant vesicles.

*Pathology.*—On the whole, the evidence points to the eruption of idiopathic zoster being due to a toxic inflammation of the posterior root ganglion of the nerve area affected. The arguments in favor of its being an acute specific poison have already been stated, and Head compares it to acute anterior polio-myelitis. It has also been shown that in sporadic cases various kinds of nerve poisons may set up a similar inflammation, or, at all events, produce the eruption of zoster.

But while the condition most frequent is a descending interstitial neuritis of the posterior root ganglion, zoster is produced by any irritative lesion or condition, in any part of the tract from the cord to the periphery of the nerve supplying the affected skin. The proofs of this are contained in the following:

That zoster is a neurosis was inferred by Rayer, but was first anatomically proved by Baerensprung,\* who showed that there was an interstitial neuritis of the posterior ganglion, and of the trunk of the nerve issuing from it to supply the region of the skin, where the eruption was distributed. This observation is true for the majority of cases, but not for all, as Baerensprung asserted. Weidner † found a lesion of the posterior spinal root between the cord and ganglion, they themselves being unaffected. Chronic inflammation of the posterior columns of the cord has been found associated with zoster, while the posterior root, the ganglion, and nerve were unaffected. As a symptomatic condition it is observed in those diseases especially involving the posterior columns, such as tabes and general paralysis of the insane, and in myelitis often at the upper level of the anesthesia, or its superjacent hyperesthesia (H. Head). Bramwell suggests that bilateral herpes at the same level (very rare) is generally due to myelitis.

Dubler ‡ has demonstrated a peripheral neuritis with absence of central disease in a case of zoster, where there were perios-

\* *Die Gürtel-Krankheit, Charité-annalen*, Bd. ix., Heft 2 and 3 (1861-62), Berlin.

† *Berlin klin. Wochenschrift.*, 1870.

‡ *Virchow's Archiv.*, May, 1884, p. 185. Abs. in *Brain*, 1884, p. 550.

teal swellings on the ribs. The neuritis extended into the muscular twigs, thus accounting for the motor paralysis sometimes associated with zoster.

Curschmann\* and Eisenlohr found multiple neuromata in the domain of the affected nerves, with the spinal cord and ganglia intact, as were also the nerve fibers in the neuromata, which were due to a perineuritis. Neuromata followed herpes in two other of their cases, and in those of others since their report.

In a case of widespread herpes Hans Hebra found at the necropsy two foci of disease in the cervical ganglion.

The lesion is not necessarily inflammatory. Wyss and Sattler in cases of *H. frontalis* † found hemorrhage into the Gasserian ganglion; hemorrhage into the cauda equina with crural herpes has also been found. Charcot had a case due to an embolus in a branch of a sacral artery, which pressed upon one of the spinal roots of the cauda equina at the foramen.

Nevertheless, interstitial neuritis is the most common lesion, irrespective of the origin or position of the exciting cause; thus herpes has followed neuritis of the trunk, produced by gunshot or other injuries (Mitchell, Morehouse, Kean, etc.), cancer of the spinal column and of the pleura (Charcot and Ollivier). Leprous deposit and peripheral irritants, *e. g.*, arsenic to destroy the nerve of a tooth produced herpes of chin, cheek, and ear of the same side (Lesser). The application of the galvanic current has twice produced it—once where the poles were applied (Liveing), and once away from them (Köbner).‡ Similar cases are those after extraction of a tooth, tapping hydatids, a hydrocele and psoas abscess, and after re-vaccination (C. Thompson). It has also been ascribed to reflex irritation (Jewel). Zoster has also been recorded in connection with cerebral lesions, but not any special ones except those of general paralysis, in which the posterior columns of the cord are often affected also, while in zoster, with other cerebral lesions

\*Quoted in *Viertelj. für Derm. und Syph.*, vol. xvi. (1884), p. 157.

† The references to the following facts are given in a paper by myself on the lesions of the nervous system related to cutaneous disease, in October number of *Brain*, 1884, p. 363.

‡ *Neurol. Centralbl.*, May 1, 1890.

the other parts of the nervous system have not been shown to be free from secondary or other changes.

The most recent and comprehensive examinations of the nerve changes are by Head and Campbell,\* who examined twenty-one cases from a few days to a year and a half after the eruption. In the most acute cases they found hemorrhages with inflammatory exudation into the root ganglion, destroying the ganglion cells more or less completely, and leading ultimately to proportionate sclerosis of the ganglion. There were secondary degenerative changes upwards in its posterior root and in the posterior columns of the cord, and downwards of the peripheral sensory nerves.

By mapping out the area of skin affected during life and determining post-mortem which posterior root ganglion was affected, they were able to trace on the neck and trunk the skin areas supplied by the various ganglia in many cases, and to infer the rest from the skin lesions of other cases. These areas do not always correspond with the sensory branches of any one nerve, but with several branches of nerves, linked by some of their fibers passing through the same ganglion. This distribution Brissaud explains by his metameric theory of the spinal cord being composed of a series of segments superimposed and relatively independent, and that zona occupies the domain of one of these segments. Pfeiffer tried to prove that it followed the distribution of the cutaneous arteries, and Abadie† contends that it is not the sensory nerves, but the vaso-dilator fibers of the sympathetic which are involved. Head and Campbell's explanation, as supported by their anatomical researches, is probably the correct one as far as idiopathic herpes is concerned, but the irritation may also be central, as in tumors of the spinal cord, in tabes, and general paralysis, or peripheral, as in arsenical poisoning, caries of rib, etc.

\* "The Pathology of Herpes Zoster and its Bearing on Sensory Localization." Reprinted from *Brain*, autumn part, 1900. John Bale, Sons & Danielsson, London, 1900. An important and highly illustrated monograph.

Head's article on "Herpes Zoster," in vol. viii. of Allbutt's "System of Medicine," gives a good *résumé* to date, 1899.

† Barbieri has shown that the posterior ganglia are connected with large numbers of sympathetic fibers.

The anatomy of the eruption itself has been investigated by Biesiadcki,\* Auspitz, Basch, Ebstein, Haight of New York, Unna, † Hartzell, ‡ Campbell and Head, § Kopytowski, ¶ etc. They concur in the following: that the vesicles are formed in the upper part of the rete in the same way as in eczema, the process proceeding from the papillary layer in which the vessels are dilated. The vesicles are unilocular, but subdivided imperfectly by the effused fluid forcing its way between the rete cells, elongating and compressing them, together with the cells of the sweat ducts and hair follicles, into a network, the meshes of which contain altered epithelial cells (protozoa of Pfeiffer) and leukocytes which have worked their way thither through the rete. The papillæ are enlarged, and, together with the corium, infiltrated with leukocytes, which may extend into the subcutaneous layer. Inflammatory changes are also to be found in the nerve twigs of the corium, which Campbell and Head have shown to persist as degenerative changes in the larger branches from ten days after the onset of the eruption. Both Bewley and Pfeiffer describe cells they consider to be giant cells in the rete, but this interpretation is not accepted. Kopytowski examined vesicles from sixteen cases at various stages. He found the vesicles intercellular in origin, and that some of them were multilocular. He found on the whole the same changes in the cells as observed by Unna, but does not admit his explanation of ballooning epithelial degeneration, and considers that the pathological process is the same in zoster as that of ordinary inflammations, and that it is of toxic origin.

*Diagnosis.*—The diagnosis of zoster is generally easy enough; a unilateral eruption in groups of large vesicles on an erythematous base, arranged along the course of one or more cutaneous nerves, is sufficient to establish it. The large size of the vesicles of herpes, which dry up instead of rupturing and emitting a continuous discharge, and the nerve distribution, are distinguishing features from *eczema*. It is sometimes difficult to decide between zoster and *H. facialis* or *genitalis*, but this is not of much practical importance. The presence of pain before the eruption, and the existence of several groups unilaterally distributed, or unusual severity in the character of the eruption, would be in favor of zoster, while previous attacks and a single group, or being on both sides, would indicate the

\* "Beiträge zur Phys. und path. Anat. der Haut," p. 245. (Wien, 1867.)

† Unna, "Histopathology."

‡ Hartzell, *Jour. Cut. and Gen.-Urin. Dis.*, September, 1894. The protozoa-like bodies of herpes zoster.

§ Campbell and Head, *loc. cit.*

¶ Kopytowski, *Archiv. f. Derm. u. Syph.*, vol. liv., 1900, p. 17. Illustrated.

trivial forms. Many of the reported double zoster cases are really *H. febrilis*, and on the face it may be especially difficult to decide, but the more abundant the eruption on both sides of the face the less likely it is to be true zoster. According to Thibierge, ophthalmic zoster always scars—I should have said *nearly* always. The other herpetiform eruptions are always bilateral.

*Prognosis.*—Unless the lesions are more severe than usual, two or three weeks are nearly always sufficient to bring zoster to a favorable termination; but continuous irritation of the nerve or its branches may lead to prolongation by the formation of fresh groups, and of course when there is ulceration or gangrene longer time is required for repair.

*Treatment.*—Since the tendency is to run such a short, favorable course, treatment is fortunately scarcely required. It is very doubtful whether we can shorten its duration, and very difficult to decide whether a rather shorter course than usual is spontaneous or due to the drug employed. Ashburton Thompson and Bulkley, however, state that one-third of a grain each of phosphid of zinc and *nux vomica* extract at the commencement, and every three hours afterwards, control the pain and abort the eruption. Where the neuralgia persists, antipyrin or phenacetin in ten-grain doses, quinine in full doses, iron, strychnia, arsenic, salicylate of soda, and cod-liver oil and a highly nutritious diet, generally offer the best chance of combating the neuritis; blistering over the nerve root and hypodermic injections of morphia are sometimes required. External treatment is useful to protect from irritation and to allay the pain or discomfort. Dusting powders of starch or zinc, with morphia and camphor added where there is much smarting, put thickly on cotton wool and bandaged on, give great relief. Calamin lotion painted on frequently and allowed to dry will sometimes diminish the severity of the lesions, if commenced sufficiently early.

Collodion painted on has appeared to me to hasten the absorption of the fluid and drying up of the vesicles; the addition of morphia is often desirable here also. The local treatment for persistent after-pain is hypodermic injections of morphia, and repeated blistering over the root of the nerve, which in some cases has answered admirably in my hands. Counter-

irritation is also recommended at an early stage at the tender spot, where the cutaneous trunks pierce the fascia, and is said to relieve both the pain and the eruption. Rubbing the part with menthol or chloroform epithems gives temporary relief, but better than all, in some cases, is the continuous current applied in the course of the nerve; from ten to twenty cells of a Leclanché battery should be applied for about ten minutes daily. Duhring says that the continuous current applied before the appearance of the eruption will sometimes render the impending attack abortive, but this I have not tried; he also recommends 3ss to 3j of the fluid extract of grindelia in 3j of water as a lotion. Leloir and his pupil Dupas strongly advocate the use of alcohol, with two or more per cent. of resorcin, thymol, menthol, or other antiseptic, applied constantly on pads either to abort or shorten the course of the disease.

### HERPES FACIALIS.\*

*Synonyms.*—Herpes labialis; Herpes febrilis; Hydroa febrilis.

*Definition.*—A herpetic eruption, occurring chiefly on the lower part of the face.

This eruption is very common, and occurs most frequently round the mouth, especially on the lower lip, but it may appear on any part of the face below the forehead, on the auricle, on the mucosa of the conjunctiva or of the mouth, such as that of the cheeks, palate, uvula, pharynx, tonsils, and larynx; and Barthélemy mentions a case, in an old woman dying of pneumonia, in whom some patches on the chest, with very large vesicles, were referable to herpes febrilis rather than to zoster. It comes out suddenly, with heat and tension of the part, followed in a few hours by a slightly papular eruption, which soon becomes vesicular on a reddened base. The vesicles enlarge to the size of a hemp seed or a small pea, are arranged irregularly in one or more groups of six to twelve each, and in a few days dry up and form small scabs, which drop off a few days later,

\* Author's Atlas, Plate XVI., Figs. 2 and 3, one showing bilateral distribution. Kaposi's Hand Atlas, Plate 105, is also symmetrically bilateral, the lower part of the face being free. There is no history, but it was more probably H. febrilis than zoster.

leaving only transitory reddened marks, the whole process occupying eight to ten days. I have once seen a gangrenous spot a quarter of an inch in diameter in an *H. labialis*.

In the vast majority of cases, as Hutchinson first pointed out, shivering, or at least a sense of chilliness, precedes the eruption, and there is often a considerable rise of temperature, due, however, to the disease in which the eruption is an incident. It is therefore chiefly met with in those diseases in which shivering is a prominent symptom, such as febrile colds, pneumonia, ague, tonsillitis, etc., but only occurring once in each attack. Vogel says that in predisposed persons local irritation, such as contact of the lips with pepper and salt or other spices, and even healthy saliva, will produce an attack.

It is a prominent feature in cases of so-called "herpetic fever," which are reported from time to time, often occurring endemically, and the eruption may be extensive. In all these cases "shivering" is a prominent symptom, and in no other way is the herpes related to the symptoms or cause of the epidemic, which has in some cases been traced to defective hygiene, especially sewer-gas poisoning. The herpetic outbreak is in some cases associated with defervescence. Epidemics of this kind have been reported by Savage,\* Seaton,† Lake of Teignmouth, etc.

*Pathology.*—Its connection with shivering suggests a neurotic origin, possibly a reflex irritation of the sympathetic ganglia of the affected region through the fifth nerve. The following case of Sulzer of Paris is susceptible of such an explanation, although the possibility of a septic origin cannot be excluded.

In 1891 forced dilatation of the urethra was followed by an herpetic eruption of the right cornea, a similar operation in 1896 was followed some hours afterwards by violent chills and a temperature of 105.3° F., delirium, and three days' unconsciousness. The whole face was covered with an herpetic eruption, which also involved the buccal, pharyngeal, and nasal cavities, the eyelids, conjunctivæ, and corneæ. The patient was in bed for six weeks, and the left eye got well, but an herpetic eruption of the right cornea recurred every three weeks; as

\* *Lancet*, January 20, 1883, and January 28, 1899, p. 252, a sporadic case.

† *Clin. Soc. Trans.*, vol. xix. (1886), p. 26.

soon as one crop got well another appeared, and the left eye was again attacked. These attacks lasted three months. Temporary increase of previous astigmatism occurred, but he eventually got well.

St. Clair Symmers \* has isolated a microbe from the vesicles of a pneumonic herpes labialis. It was of either rod or thread form, and in the presence of oxygen when cultivated on gelatin, but not on potato, developed a pea-green pigment, resembling that of Frick's bacillus virescens, and different from pyocyanin.

*Prognostic Significance.*—Its frequent occurrence in sthenic pneumonia, which begins with a rigor and runs a pretty definite course, whilst it is less likely to occur in asthenic pneumonia, is perhaps the foundation for the notion that herpes is of good prognostic significance in pneumonia, a view advocated by Germain Sée; but as a rule it is rather only an evidence of febrile disturbance, past or present, with shivering. Ornstein's statement that in ague whitish-yellow crusts point to a slight fever, brown ones to a more severe, and painful crusts to pernicious attacks, requires confirmation. Unless irritated it invariably takes a favorable course, but in a few instances tends to recur for years, often without apparent cause. Thus one of my patients, a lady æt. seventeen, had one or two attacks a year from her earliest childhood, and she could not connect it with any definite cause. Another case, a gentleman æt. fifty-nine, doubtfully gouty, had had it five successive years, "excited by the summer sun and the sea air," rarely under other circumstances. In both these cases the eruption was on the lower lip, but not always on the same place, but it may recur in other parts of the face. Like its congener, herpes progenitalis, gouty conditions predispose to attacks. Dubreuilh has written a paper on "Recurrent Herpes" (not zoster), in which he relates several similar cases.

*Treatment.*—The only treatment required is protection from irritation, which may be afforded by calamin lotion, which also allays itching, and if commenced early may diminish the severity of the attack. Starch and zinc dusting powders or weak boric acid ointment are also good applications. Hutchinson believes that the recurrent form is definitely controlled by the use of arsenic.

\* *Brit. Med. Jour.*, December 12, 1891, p. 1252.

**HERPES PROGENITALIS.**

*Synonym.*—Herpes preputialis.

*Definition.*—An eruption, consisting of vesicles in a group, on an inflamed base, occurring on the genital organs of both sexes.

This eruption is not uncommon, and would be of small importance were it not that its frequent recurrences give great annoyance to the patient and excite apprehensions of syphilis. In men it occurs most frequently on the inner surface of the prepuce, less often on the outer surface, in the sulcus, glans, meatus, the sheath of the penis, or even in the urethra (Diday). In women its most common position is on the inner or outer surface of the labia majora, on the mons veneris, and occasionally on the nymphæ, or prepuce of the clitoris, and on the cervix uteri near the os externum. Obviously, therefore, the name most frequently used, *H. preputialis*, is inappropriate.

The eruption is preceded by itching and burning of the part, followed in a few hours by the development of a vesicle or a group of vesicles, seldom more than one group, on an erythematous base; there may be swelling and edema of the prepuce. The vesicles are the size of a pin's head, contain a clear fluid, and when on a moist surface look like opaque white specks; they rupture in a few hours, leaving tiny excoriations, which heal in two or three days. When on an external part they dry up, leaving a little scab, which soon falls off. The whole process is a matter of a week or less.

*Variations.*—When irritated, *e. g.*, by repeated sexual intercourse, mistaken zeal in the use of caustics, etc., the disease may be kept up for weeks from ulceration, which may spread and suppurate freely, with tenderness and enlargement, and even suppuration of the inguinal glands \* (Berkeley Hill). Severe neuralgia of the branches of the sacral, pelvic, or sciatic nerves, or gangrene of the site of the eruption, as Mauriac †

\* Taylor and Bumstead, in their work on syphilis, relate a case where a man had sciatica four times a year for ten years, and seven times out of ten with herpes of the penis.

† Mauriac relates somewhat similar cases of neuralgia in "*Herpès névralgiques des organes génitaux*"; and in his "*Ulcérations non virulentes des organes génitaux*," 1878, p. 49, gives a case of gangrene with *H. progenitalis*.

describes, is to be explained by such cases being examples of *H. zoster*, rather than *H. progenitalis*. On the other hand, in Lausseday's \* case herpes recurred in a patch on the sacro-lumbar region at every catamenial period for five years, except during three months, when she had influenza and bronchitis, and this evidently belongs to the present affection and not to *zoster*. A similar case has come under my own observation, but with fewer recurrences and not connected with the catamenia. Dubreuilh cites similar cases.

*Etiology*.—It is much more common in men than women, and is usually, but not always, as Doyon asserts, preceded by venereal disease, such as gonorrhea, or a soft chancre. It comes out most frequently two or three weeks after the sore is healed, or the gonorrhea cured. It recurs every two or three months, or, in some cases, at regular intervals of three weeks or a month, the recurrences being generally determined by local irritation, especially coitus, passing a catheter, etc. For my own part, I am more inclined to ascribe it to such local causes than to internal disturbances, though it may arise from the gouty diathesis, excesses in eating or drinking, dyspepsia, or exhaustion from any cause, provided that the last attack is not very recent. These recurrences may last for years, and then cease, unless the tendency is reawakened by fresh local venereal troubles. On the other hand, the relapses are sometimes permanently interrupted by a severe general illness, such as smallpox, syphilis, etc. (Berkeley Hill).

*Pathology*.—The presumption is in favor of the disease being due to a reflex excitation of the neighboring sympathetic ganglia, through irritation of the sensory nerves of the part.

*Diagnosis*.—No difficulty can arise in a simple case. The group of small vesicles on a red base is quite characteristic; but when not seen until suppuration has occurred it may easily be mistaken for a *soft sore*. When a group has coalesced the resulting excoriation can be seen with a lens to have a gyrate outline—occasionally there is only a single vesicle, when the possibility of its being herpes will probably be overlooked. The chancre is flattened at its base and secretes scarcely any liquid, whilst, according to Leloir, the herpes discharges a large

\* *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 408.

quantity of serous fluid when pressed, and is reduced in size; but in some cases nothing but time or auto-inoculation can decide positively. In a few days, if the parts be kept separated and iodoform applied, the ulcer will clean and begin to heal, while a soft chancre will take longer before improvement sets in.

*Treatment.*—Wash the parts two or three times a day, and keep the surfaces apart with a piece of lint soaked in weak lead lotion, or with wetted boracic lint, which I have found answer admirably; or dry carefully and apply starch and zinc powder, and put a strip of lint or linen over it. Where suppuration has occurred, iodoform, followed by lotio nigra, would be appropriate, with rest, if the glands are enlarged. To prevent recurrences the patient should be enjoined to wash carefully immediately after coitus, and also daily. Circumcision has been recommended where the prepuce is long, but often fails, the eruption coming elsewhere. The gouty diathesis should be combated by appropriate measures, such as giving alkalis, regulating the diet, avoiding fermentable liquids, such as beer, champagne, etc. Doyon \* says, in an interesting and exhaustive essay on the subject, that the waters of Uriage, of which he is the inspector, are the best means of cure for such cases.

**Persistent Balanitis.** A constantly recurring surface inflammation and excoriation of the glans penis and prepuce is sometimes seen in elderly men from sixty to seventy. One of my cases began as a recurrent herpes, but no cause is ascertainable in most instances. The surface for a variable extent remains superficially excoriated with a sharply defined border. Even if it heals for a time, it is almost sure to break down again, either in the same or another place. Such cases are apt to degenerate into epithelioma.

Hutchinson, who has written on the subject, says it is incurable, but much may be done for it by persistently using microbicides.

A 1 in 8000 to 1 in 6000 perchlorid of mercury solution on lint may be applied, and if, after a day or two, it is beginning to irritate, wet boric lint may be substituted, returning to the

\* Doyon, "De l'Herpès récidivant des parties génitales." (Paris, 1868.)

perchlorid when the irritation has subsided. In one case touching some of the obstinate spots with pure formalin at the end of a match was effectual in healing them.

**Zoster Atypicus Gangrænosus et Hystericus** (Kaposi). *Vide* Hysterical Gangrene.

## BULLOUS ERUPTIONS.

Bullæ may occur as an occasional or constant feature in a large number of acute inflammations of the skin, in some toxic general diseases, and in some neuroses.

Thus there are bullous forms of urticaria, erythema ab igne, and erythema multiforme, but these are exceptional, while herpes iris is frequently bullous, and in impetigo contagiosa it is fairly common.

In vesicular eruptions, like eczema and herpes, bullæ may be formed by coalescence. Some drug eruptions, of which quinine may be especially mentioned, take a bullous form, and external irritants often excite bullæ or blisters, chiefly depending on the severity of the irritant. *Rhus toxicodendron* and *primula obconica* may be instanced among vegetable, *cantharides* among animal, and arsenic among mineral irritants.

Bullæ are an occasional feature in some of the exanthemata, such as scarlatina and varicella, and are quite common in erysipelas.

Bullæ also occur in the symptomatology of syphilis, both congenital and acquired, in the early and late stage of leprosy, and in various lesions of the nervous system, both central and peripheral.

The essentially bullous eruptions now to be considered are pompholyx, epidermolysis bullosa, pemphigus, dermatitis herpetiformis, and some other forms of hydroa, while there are a good many cases of anomalous bullous eruption which are not classifiable with our present knowledge.

**POMPHOLYX.\***

*Deriv.*—*πομφόλυξ*, a bubble.

*Synonyms.*—Cheiro-pompholyx (Hutchinson); Dysidrosis †  
(Tilbury Fox).

*Definition.*—A vesicular and bullous eruption limited to the hands and feet.

This disease was described originally by Tilbury Fox in 1875, and, independently, by Hutchinson, from the same case. I have adopted the American name, as it does not assume any pathological theory.

The disease is not a common one, and the more severe forms are rare, but I have seen a good many cases since Tilbury Fox first pointed out its characters to me.

It is a disease that is seen chiefly in the summer, and is limited almost exclusively to the hands and feet, and while symmetrical in the main, one side is often worse than the other. The hands are always affected, while the feet often escape, and are seldom so bad as the hands. The eruption commences with burning and tingling, and development of deeply imbedded vesicles, singly or in groups, along the sides of the fingers and on the palms, but no part is exempt; in bad cases the whole surface of the hands is affected. In the earliest stage I have repeatedly verified Fox's observation, that small transparent rings of fluid are visible round the sweat orifices; but this cannot be demonstrated, as they become larger, when they have been aptly compared to boiled sago grains imbedded in the skin; at the same time too much stress has been laid on this appearance, as it is due more to the anatomical constitution of this part of the skin than to any peculiarity in the process. When the vesicles are grouped they frequently coalesce into larger bullæ with irregular outlines, which project considerably

\* *Literature.*—"On Dysidrosis," Tilbury Fox, *Amer. Jour. of Derm.*, 1875, p. 1.

"Cheiro-pompholyx," Hutchinson. "Illustrations Clinical Surgery," London, 1878. Vol. i., Plate X., colored.

† G. T. Jackson's dysidrosis is a different affection, described under Hidrocystoma.

above the level of the skin. The contents both of vesicles and bullæ are neutral, or alkaline, perfectly clear at first, though the older ones are turbid. When fully developed the hands are covered with vesicles and bullæ from one-sixteenth to one inch or more in diameter, with swelling and tension, but with little or no redness of the skin; in ten days or a fortnight the contents are absorbed, for the vesicles never rupture spontaneously, and the detached epidermis is exfoliated, or can be cut off, exposing the red delicate new skin, which never discharges like an eczema; this soon hardens, and the disease is well, but is very likely to recur in the following year, or later. During and before the eruption the hands are often in a condition of hyperidrosis, and it is most frequent in damp-handed persons, who are nearly always out of health at the time of attack.

The following case is a fairly typical example, and illustrates most of its features:

George T., æt. thirty-six, carpenter, came to the hospital on January 23, 1883. He first suffered from the eruption six years previously; since then he has had one or two attacks a year, all but the present one having been in the summer; it is especially likely to come on when he is out of health and living badly. The feet are sometimes affected, but never severely. In this attack both hands were involved, but the right was much the worse. There were large bullæ and vesicles on the palmar surface of the hands and fingers, and there were vesicles along the sides of the fingers, but the backs of the hands were free; the vesicles and bullæ were from one-eighth to one inch in diameter, the smaller ones rounded, the larger irregular from coalescence. No connection with the sweat ducts could be traced, but none of the vesicles were in the earliest stage. His general health was now good. He was ordered perchlorid of iron internally and oleate of zinc ointment, and in a week was sufficiently well not to attend a third time.

*Variations.*—Many authors include in this category the very slight cases, which are not uncommon, where there are simply a few "sago grain" vesicles along the sides of the fingers, coming on in hot weather in moist-handed persons, with or without slight derangements of health, and itching rather severely, drying and disappearing in a few days. I consider it a separate affection.

In a few cases an eruption, generally of an eczematous aspect, appears on the arms or elsewhere, and occasionally the disease, instead of getting well quickly, lasts several weeks.

*Etiology.*—It occurs in both sexes, but is much more common in women. Hutchinson says he has never seen it below puberty or in old persons. The youngest I have any record of was a girl of twelve (Waren Tay had a case aged nine), the oldest a woman of fifty-four. It is most common in young women of nervous temperament, is especially liable to occur when they are broken down in health from worry or excitement, or other cause of nervous depression. The above statements apply to the severe typical cases. The cases of a few vesicles along the sides of the fingers in hyperidrotic persons only require hot weather for their reproduction.

*Pathology.*—There has been much dispute about the pathology, chiefly as to whether it is a disease of the sweat glands, Fox affirming, Hutchinson, Breda, and Unna denying this. For my own part, on clinical as well as anatomical grounds, I think the disease is intimately connected with the sweat apparatus, but I should rather connect it with hyperidrosis than dysidrosis. Primarily, however, I think the disease is of neurotic origin, probably a vaso-motor neurosis leading to inflammation in and about the sweat apparatus, but not limited to those structures.

*Anatomy.*—This has been investigated by Fox\* and myself conjointly, by Robinson† of New York, by myself since independently, and by W. Williams, ‡ Breda, G. and F. E. Hoggan, § etc. There is such a discrepancy between the observations that it is a question whether the same affection has always been under examination. Robinson, Williams, and Breda all affirm that the disease has nothing to do with the sweat apparatus. Breda saw a sweat duct traverse a vesicle without having any communication with it. How this could be, as the sweat ducts in the rete have no walls, is not evident. Williams also in serial sections found no connection with the sweat duct. Judging from his description, he was examining the mild cases on the sides of the fingers already described as probably a separate affection, and Breda probably did the same, as the typical form is too rare to get many cases in a short time. Unna has found a special bacillus, and claims the disease as a local

\* *Pathological Transactions*, vol. xxix. (1878), p. 264.

† *Archives of Dermatology*, vol. iii., No. 4 (1877), p. 289.

‡ *Brit. Jour. Derm.*, October, 1891.

§ Hoggan, *Monatsh. f. Derm.* (1893), pp. 110 and 148.

infection, but no one accepts this view besides himself. The Hoggans and myself, while finding the sweat ducts frequently in connection with the vesicles, admit that they are not always so in all the vesicles, which may be either superpapillary or interpapillary.

Fox and I, in the first examination of the disease in an early stage, showed that many of the earliest vesicles, which are always formed in the rete, somewhat more in the upper part, were directly in the line, and interrupted the course, of the sweat duct, and in some of the coils there were signs of inflammation. Robinson, on the other hand, found the vesicles nearer the top of the rete and over the papillæ, and he could find no connection with the sweat ducts and glands. Having obtained some skin from another patient I found the following conditions, which I give in greater detail as they have not been published elsewhere.

The vesicles were always formed in the rete, generally in the upper part close to the horny layer, but sometimes in the middle, and occasionally quite low down. They could be shown to be distinctly in the line of the sweat duct sometimes, and a sweat duct could be distinctly seen leaving the vesicle, and it was, therefore, distinctly in the interpapillary part. In other parts, although there was no sweat duct in the section, the vesicle could be shown to be in the interpapillary process. On the other hand, and that, too, sometimes in the same section, some vesicles were evidently over the papillæ, and occasionally a sweat duct could be traced between the vesicles. On the whole, there were probably more vesicles over papillæ than between them. Slight proliferation of the sweat-duct cells could be seen in the upper part, and even sometimes in the lower, but in no case could I satisfy myself that the sweat coil was inflamed.

These observations apply to only the smallest vesicles; when comparatively large, they encroach upon and destroy the whole of the rete, but seldom raise up the horny layer. The papillæ near the vesicles were infiltrated with leukocytes, but not densely; leukocytes were also to be seen near the upper wall of the vessels of the papillary layer, but not near the lower, and there was seldom any sign of inflammation round the deep vessels; indeed, the main feature was that the inflammatory process was almost confined to the papillary layer, and that it was of very moderate intensity.

*Diagnosis.*—The most characteristic features are its limitation to the hands and feet, the tendency of the vesicles not to rupture, but to dry up, the spontaneous recovery, and the tendency to recur repeatedly, especially in the summer time. In these particulars it differs from vesicular eczema palmarum, which it otherwise closely resembles, for here when vesicles form they rupture spontaneously, and expose a weeping surface instead of a dry one as in pompholyx. The position and formation of the bullæ by the coalescence of the vesicles are enough to distinguish it from pemphigus.

*Prognosis.*—This is good for each attack, which will probably be well in a fortnight, but it is almost sure to recur at some time or other.

*Treatment.*—Internally, iron and strychnine, or quinine and iron, are generally required. Arsenic is strongly recom-

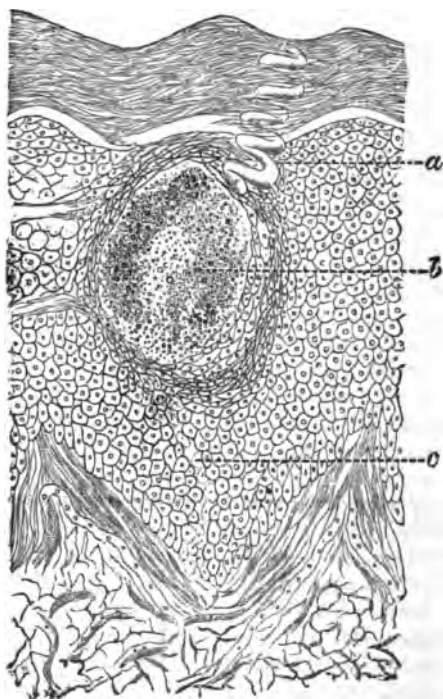


Fig. 18.—Pompholyx.  $\times 150$ .

*b*, Vesicle formed in the interpapillary portion of the rete directly in the course of the sweat channel *a* and *c*.

mended by Robinson, but all my cases have got well quickly enough without it.

Since the patients are almost always depressed, and otherwise out of health, efforts to improve their surroundings ought to be made, the mind diverted, and change of air and scene should play an important part in the treatment, but it must be confessed that the patients, most frequently of the poor class, manage to dispense with these luxuries and get well in a short time.

Locally, one of the oleates is most suitable. Oleate of zinc or lead ointment should be spread thickly on strips of linen and closely applied, doing up each finger separately; this gives great relief to the tingling and tension, and the inflammation soon subsides, and healing follows.

For the slight cases at the sides of the fingers painting with calamin lotion two or three times a day is sufficient for the attack, and in a few troublesome cases argent. nitrat. gr. v. and sp. æth. nitrosi ʒj painted on once a day; but as it discolors the skin it should be reserved for obstinate cases. Arsenic internally, when there is frequent recurrence, is sometimes successful in stopping it, and perhaps this is the class of case in which Robinson used it.

### EPIDERMOLYSIS BULLOSA HEREDITARIA, OR CONGENITAL TRAUMATIC PEMPHIGUS.\*

Tilbury Fox described two cases in 1879, but Goldscheider's case in 1882 was more clearly differentiated. The children are born with a liability to the formation of bullæ after the smallest physical provocation. The excessive vulnerability shows itself in the first month of life, and is said to improve at from forty to fifty and cease in old age, but Augagneur's case had it still at sixty-four, and Hallopeau's at fifty-five. It is strongly hereditary, often through several generations (five in Bonaiuto's case); it shows also a family prevalence, and is rather more frequent in males than females. The slightest injury, blows, pressure, friction, or scratching, is followed by the formation of a bulla, sometimes preceded by intense itching and redness. The bullæ are often hemorrhagic and of large size, two inches across or more, and their shape may be irregular from the nature of the injury instead of round or oval. Al-

\* I. Wallace Beatty, *Brit. Jour. Derm.*, vol. ix. (1897), p. 301, gives an excellent historical *résumé* to date.

II. Abs. of Bonaiuto's comprehensive paper, with *résumé* of forty-eight cases, in *Brit. Jour. Derm.*, vol. v. (1894), p. 317; other abs. vol. ix., xi., and xii.

III. Hallopeau, *Annales de Derm.*, vol. ix. (1898), p. 721, with many references. He subdivides the cases into a simple, a dystrophic, and an attenuated form.

though the bullæ appear to be quite superficial, either from repetition in the same place, and possibly sometimes from secondary pus infection, they frequently leave atrophic or even thickened scars; and milium, as in other forms of pemphigus, has been repeatedly observed (Hallopeau, Beatty, Colcott Fox, etc.).

The parts most exposed to injury, the hands, feet, and bony prominences (*e. g.*, elbows and knees), are the favorite sites for the bullæ and their scars; at the same time, bullæ come out apart from injury, and from no ascertainable cause, even in the mouth. The fingers and the nails are very often deformed or altogether destroyed, but I have seen them unaffected.

It was associated with ichthyosis in a case of Startin's and in one of my own. Atrophic \* changes, even where there have been no bullæ, such as thinning and lentiginous pigmentation, are sometimes seen. In adults, with ordinary pemphigus, injury will sometimes determine the development of a bulla, and in a case under Colcott Fox,† a woman of fifty-one, after having had pemphigus for nine years, she ceased to have acute outbreaks, but acquired the same vulnerability as the congenital cases, both in the skin and mucous membranes.

*Pathology.*—This is obscure. There is probably an excessive irritability of the vaso-motor nerves analogous to that of urticaria factitia. It is uninfluenced by arsenic. Elliot ‡ excised a bulla, and showed that there is a raising up of the greater part of the rete, but Bonaiuto stated that the bleb occupied the horny layer, and did not affect the rete, but the tendency to scar shows that this must be exceptional. Bettmann found that the whole epidermis was not lifted up. Elliot's further observations showed that in apparently normal skin of such patients there were degenerative changes in the rete just above the basal layer. He considers that it is not a real disease, but a cutaneous condition with increased vascular irritability. The evidence as to eosinophiles in the bullæ is conflicting.

\* *Vide* Bettmann's cases, *Archiv. f. Derm. u. Syph.*, vol. lv. (1901), p. 323. Three red-haired brothers all began at twelve years of age, just after revaccination. They all suffered from epistaxis and lentiginous pigmentation, with atrophic changes on the backs of the hands.

† *Brit. Jour. Derm.*, vol. ix. (1897), p. 341.

‡ *Jour. Cut. and Gen.-Ur. Dis.*, January, 1895, and *N. Y. Med. Jour.*, April 21 and 28, 1900. Abs. *Brit. Jour. Derm.*, vol. xii. (1900), p. 256.

*Diagnosis.*—Hallopeau \* describes cases of what he calls "congenital bullous dermatitis with epidermic cysts," of which also Vidal and Besnier have had examples, and thinks they are different from epidermolysis bullosa because of (1) The inflammatory character of the eruption; (2) the predilection for the dorsal surface of the articulations; (3) the non-affection of the palms and soles; (4) the cutaneous atrophy, the permanent cicatrices, and the loss of the nails; (5) the epidermic cysts; (6) the bullæ may develop without apparent traumatism; and (7) the acute outbreaks following nerve distribution areas. Except the last I have seen all the above distinctions broken through in different cases, and do not, therefore, regard Hallopeau's cases as really distinct.

## PEMPHIGUS.

*Deriv.*—πέμφιξ, a blister.

*Synonyms.*—Pompholyx; *Fr.*, Pemphigus; *Ger.*, Blasenanschlag; Pemphigus.

*Definition.*—An acute or chronic eruption characterized by the formation of bullæ in successive crops, usually without antecedent lesions.

The disease is a rare one, occurring about once in 500 cases of skin disease in England and America. Kaposi's statistics of over 44,000 cases give 1 in 210; but he includes some bullous eruptions not classed under pemphigus by English writers. My own statistics, taking pemphigus and dermatitis herpetiformis together, give 4.4 per 1000.

Before describing what pemphigus is it will clear the ground to briefly state what the affections are which either have or had the name of pemphigus, but no longer enter into the modern conception of the disease.

In former times, when the objective lesion was the sole ground for diagnosis, many symptomatic or other bullous eruptions were classed as pemphigus. Thus **P. Leprosus** and **P. Syphiliticus** are the bullous eruptions of leprosy and syphilis, and are described under their appropriate heads.

\* Hallopeau, *Annales de Derm.*, vol. vii. (1896), April No., and also p. 453.

**P. neonatorum** is now known to be a pus cocci affection, and **pemphigus contagiosus** and **P. contagiosus tropicus** are of similar if not identical origin. (*Vide* Pus Cocci Diseases.)

**Congenital pemphigus** is described under Epidermolysis bullosa.

**P. neuroticus**, although not considered a true pemphigus, is a convenient term for the various outbreaks of bullæ which occur in the course of certain diseases after injuries, most of which are connected distinctly with irritative or paralytic nerve conditions, the irritative being the more important. Although many instances of associated cerebral disease with bullous eruptions are on record,\* I am not aware of any uncomplicated with cord disease; *e. g.*, bullous eruptions on the lower extremities are frequent in general paralytics, in whom posterior sclerosis of the cord is also very common.

Déjerine records a case in which, twelve days before death, pemphigus broke out on the extremities, and post-mortem there were diffuse periencephalitis, sclerosis of the lateral columns, and degeneration of the peripheral ends of the nerves under the bullæ. In locomotor ataxy bullous eruptions are not infrequent, and in three well-marked cases sclerosis of the columns of Goll was the principal change found post-mortem, where during life there had been extensive bullous eruptions. Bullous eruptions are fairly common with chronic myelitis and acute spinal meningitis. Balmer † gives three instances in which pemphigus occurred in progressive muscular atrophy, but there is no proof that the lesion in the cord was limited to the anterior cornua. Mitchell gives several instances of bullous eruptions following nerve injuries, those setting up neuritis being chiefly to blame; where the nerve is completely paralyzed bullæ occasionally form after exposure to heat or cold, or the like, and the early and late bullous eruptions of leprosy afford examples of disease of the nerve, producing similar effects.

\* Leloir, *loc. cit.* Two recorded by Schwimmer, in his "Die neuropathischen Dermatosen," cases 13 and 14, p. 148 *et seq.*; case 12 is also interesting; one by Meyer of Strasburg, in Virchow's *Archiv.*, November 5, 1883; full abstract in *Brain*, January, 1885.

† Balmer, *Archiv. für Heilkunde*, 1875, p. 317.

Déjerine, Quinquaud, Leloir, Jarisch, and Mott \* found degeneration of the peripheral nerve ends in five cases of pemphigus, but in all there were central changes as well. Again, Mott and Wright † found lesions in the small cutaneous branches of the anterior crural nerve, and in its spinal ganglia in a case of general paralysis with a gangrenous bullous eruption. Still the evidence goes to show that bullous eruptions may occur in connection with, and probably indirectly due to, lesions of the nervous system situated anywhere from the center to the periphery of the sensory tract, though similar lesions are much more frequently found with no bullæ; and that irritative lesions have much more effect than paralytic ones in their production, an external excitant being necessary in paralytic lesions, in which also the bullæ are solitary or few in number. ‡

**P. hystericus** is a variety of *P. neuroticus* in which nerve lesions are usually not demonstrable. It is a rare bullous tropho-neurosis in which the distinction from a true pemphigus is not always easy to make, except from the kind of patient in whom it is met with.

From time to time these cases are reported in women, mostly young, and pronounced hysterics, and as a rule the outbreaks follow or alternate with other recognizably hysterical phenomena; but in some cases these latter may be wanting in relation to the bullæ, although the neurotic temperament of the patient is evident enough. In a patient of Du Mesnil de Rochemont, § who had annual attacks from the age of seven, when æt. twenty-nine simple verbal suggestion would bring out typical bullæ in another, and the hysteria went on to mania and dementia. Other vaso-motor disturbances are often present, such as tachycardia and redness and burning of the skin before the bullæ appear.

\* In a case of Sangster's read before Med. Chir. Soc., *Brit. Med. Jour.*, June 16, 1888.

† *Archives of Neurology*, vol. i. (1899), and *Brit. Jour. Derm.*, vol. xii. (1900), p. 29.

‡ *Archiv. f. Derm. u. Syph.*, vol. xxx. (1895), p. 103. Good abs. in *Annales*, vol. vi. (1895), p. 842.

§ *Archiv. f. Derm. u. Syph.*, vol. xxx. (1895), p. 163. Good abs., in *Annales*, vol. vi. (1895), p. 842.

In Boradet's case, a pronounced hysteric of seventeen, successive bullous outbreaks appeared for months on the hands, forearms, forehead, and cheeks, which began as red lymphangitic plaques on which vesicles formed and coalesced into bullæ. These dried into crusts and shelled off in a week without leaving any scar or mark. This is the rule, but sometimes they become suppurating and even gangrenous sores, and more or less scarring and even keloid will then result, as in the case of Neuberger,\* an hysteric of twenty-six, who had scars and keloids from a previous attack. A month after she came into his clinic numerous blebs came over the right breast and clavicle. They kept on recurring, and then spread to the left breast and arm. The bullæ were clear yellow, and had a pale red wheal-like margin. After some days they dried into easily detachable yellowish-green crusts, beneath which were suppurating fetid ulcers. As they slowly cicatrized, keloids developed. Instead of blebs, necrotic areas, as if the skin had been cauterized, sometimes appeared. The eruption recurred persistently, affected the mouth and vulva, and fugitive erythema often came on the face. The patient emaciated and died in three months from the onset. There were no peripheral nerve changes, but syringomyelia was found, of which there were no diagnostic symptoms during life. He compares his case with Doutrelepon's well-known case (*vide* Hysterical Gangrene), and with Kaposi's zoster gangrænosus.

**Pemphigus Virginum**, or Pemphigus of girls (Hardy), **Pemphigus Chloroticus** (Tommasoli).† Hardy described a vesiculo-bullous eruption in young and generally chlorotic girls in which the bullæ developed on elongated or oval red plaques of one to three centimeters. The vesicles soon burst and dry into a thin yellowish crust. They may be very numerous and cover a whole limb. The affection, by a succession of fresh lesions, may last for several months, and Tommasoli regards it as quite different from *P. hystericus* and considers it due to an auto-toxin.

\* *Transactions Germ. Derm. Soc. at Leipzig*, 1891. *Abs. Brit. Jour. Derm.*, vol. vi. (1893), p. 60.

† "Du Pemphigus des jeunes filles et du *P. hystericus*," Tommasoli, *Jour. Maladies Cutanées*, vol. vi. (1895), p. 449.

There only remain four definite main varieties: pemphigus acutus; pemphigus chronicus ~~sea~~ vulgaris; pemphigus foliaceus, which is always chronic; and pemphigus vegetans. A few minor varieties will also be noticed.

**Acute Pemphigus** is much rarer than the chronic form, and Hebra even denied its existence; but though, doubtless, cases have been called acute pemphigus in which the bullæ were merely an accidental feature, as in bullous erythema, varicella bullosa, etc., there are other cases which run their course in from one to six weeks, often with a fatal termination, and are universally regarded as pemphigus; though etiologically they are probably separate affections.

Pernet,\* in publishing a fatal case observed by him in my clinic, collected sixteen other cases (eight fatal), and found that, while three were due to bites of animals, the others occurred either in butchers (eight) or those whose occupations rendered them liable to animal septic poisons, and in many of them a distinct history of a wound was obtained. In several the first bulla was at the wound and was mistaken for a whitlow. In a considerable number of cases the temperature has been over 104° and with shivering nausea and other febrile symptoms. In these cases bullæ from a pea to a hen's egg in size, and many of them hemorrhagic, come out by the score every day, and affect the tongue, mouth, eyelids, and other mucous orifices. There is often very extensive denudation of the epidermis from coalescence of the crowded bullæ, especially at the flexures and points of pressure, and the stench of the sodden decaying epidermis is almost insupportable. In the worst cases the patient becomes delirious and dies in a typhoid state in from one to three weeks, often with albuminuria, as in Senfleben and Duckworth's † cases; the latter died in nine days, one-sixth of the whole body surface being affected. The prognosis is largely determined by the acuteness of development of the bullæ, and the extent of body surface involved.

Even where recovery takes place, as in Southey's ‡ case, æt

\* "Acute Pemphigus," by G. Pernet and W. Bulloch. *Brit. Jour. Derm.*, vol. viii., May, 1896, p. 157, with full references and bacteriology

† *St. Bart.'s Hosp. Rep.*, vol. xx. (1884), p. 41.

‡ *Clin. Soc. Trans.*, vol. viii., p. 179.

nineteen, and Payne's, \* æt. seventy, the patient was brought to death's door. Allen's † case, though acute in development, only affected the upper part of the body, and that not severely; it was preceded by itching, chilliness, nausea, malaise, and was, as usual, accompanied by fever.

Acute pemphigus in children is much more common, often less severe, and probably of different etiology. Diarrhea, sickness, and fever are usual antecedents and concomitants; its danger is measured by the extent of skin involved in a short time; it has supervened after the exanthemata, such as scarlatina and measles.

Bulloch examined the fluid of an unruptured bulla both in Pernet's and Hadley's case, and found a diplococcus rather larger than the gonococcus. It appears to be the same organism as that described by Demme and Bleibtreu in their cases, and is probably the pathogenic organism.

**P. Chronicus** (the specific title "vulgaris" is generally dropped) is the usual form. In a typical case hemispherical or oval bullæ, with tense walls and translucent contents, develop bilaterally, and to some extent symmetrically, upon almost any part of the body; but they are generally most abundant upon the lower part of the face and trunk, and on the limbs. They come out in crops at intervals of a few days, scattered singly, or irregularly grouped, vary in number from two or three to several scores, and are vesicular from the first, though there may be slight punctiform vascularity of the surface, preceding the pin's-head-sized vesicle, which, rapidly enlarging, attains its full size in a few hours. The majority are from a quarter to one inch in diameter, but the extremes are from an eighth to two or three inches in their greatest diameter. The largest are generally formed by coalescence with neighboring bullæ, and are therefore irregular in outline. The bulla projects abruptly and prominently above the normal skin,

\* *St. Thomas's Hosp. Rep.*, vol. xii.

† *Jour. Cut. and Gen.-Ur. Dis.*, vol. vi. (1888), p. 121, with colored plate and reference to two other cases.

Hallopeau and Lévi publish the case of a butcher, æt. sixty, who recovered. Bullæ ceased to come out after the second week. *Annales de Derm.*, vol. viii. (1897), p. 61.

forming an oval or roundish tense-walled bleb, the fluid in which is at first perfectly clear, and there is no areola; but the contents soon become turbid from the increased number of leukocytes, and a narrow red areola forms as the purulent character increases. The effused fluid is soon absorbed, leaving only a thin scab on its site, formed by the dried cover of the bulla, or, if the latter ruptures, a superficial excoriation may ensue, and when this has healed, or when the scab falls off, a red stain is left, which after a time may become pigmented. The duration of each bulla is a matter of a few days; but the disease as a whole, by the formation of fresh crops, lasts from six weeks to as many months, the fresh bullæ eventually becoming fewer and smaller. Though there may be only one attack, as a rule the disease recurs several times at intervals of a few months or a year, and then ceases altogether.

*General Symptoms.*—In a well-marked case, especially in children and old people, the eruption may be preceded by chilliness, nausea, and even vomiting, pyrexia amounting to a rise of two or three degrees, and other febrile symptoms, which often recur with each fresh crop of eruption; and when the excoriated surface is large, and the bullæ numerous and come out at short intervals, there may be severe prostration from the sleeplessness, pyrexia, and anorexia, and even death may occur in acute cases, within two or three weeks from the onset of the eruption. On the other hand, in most adults, and where the bullæ are few and in moderate numbers, there may be little or no constitutional disturbance, but only local subjective symptoms, such as a feeling of heat or tension. Where the bullæ are most abundant and crowded, or if the pus is confined by the crusts, the lymphatics and glands of the neighborhood become inflamed, but there is only actual pain and smarting when the corium has been exposed by the too rough removal of the crusts, by scratching or otherwise.

*Variations.*—Great differences are produced in the clinical aspect of pemphigus, owing to the variation in number, size, and contents of the bullæ, the condition of the skin beneath their covering, the intervals between the evolution of the crops or of the disease as a whole, and the constitutional or subjective symptoms.

In rare instances the disease may be in a sense local. One

or two large bullæ appear at a time, erratically as regards their position, but with rather a tendency to appear where the circulation is feeble, such as on the toes, fingers, or nose, or on the ankle or wrist, local venous congestion sometimes preceding the bullæ. This is spoken of as *P. solitarius* or *localis*, and is seen chiefly in the aged and debilitated. I have, however, seen it on the legs only of a young woman and on a man of fifty-four.

In a few cases I have seen it limited to the face and back of the hands. In one, a boy of four, a bulla formed under each nail, detaching it from its bed, except at the base. Pick\* records a case of an hysterical woman in whom it was unilateral, the whole right side being affected; and H. Neumann of Potsdam records the case of a boy of nine in which bullæ and purpuric lesions were on the left side only, following diphtheria, measles, and severe otitis media, and preceding subacute suppurative polymyositis.

When they appear in continuous crops and in enormous numbers it is *P. diutinus*. In this form scarcely a part of the body is free from eruption, and life is endangered.

Willan, Hebra, and Kaposi use the same term for cases where the relapses follow closely or even almost continuously on each other, instead of at the usual intervals of a year or so. Again, it has been used for cases where the bullæ continue to appear for many years, or even for the whole life, but only one or a very few at a time. Obviously, it is best to drop altogether the use of a term the meaning of which varies according to the view of the individual who employs it.

The contents may be purulent at an early stage, or yellow lymph may form on the base (*P. diphtheriticus*), or the inflammatory process may be still more intense and superficial, or a deep slough may form (*P. gangrænosus*)—this generally occurs in children only, and will be again alluded to; or there may be hemorrhage into the bullæ, varying in amount from enough to impart a mere pink tint to the serum, up to black (*P. hæmorrhagicus*, or *purpura bullosa*).†

\* Quoted *Arch. Derm.*, vol. vi., p. 283, from *Wien. med. Presse*, 1880, p. 183.

† In 1898 a male infant, æt. one month, was brought to the U. C. II. The eruption began four days after birth with two spots on the chest, and

In **P. Pruriginosus**, as the name indicates, severe itching is the prominent symptom, and the consequent scratching produces, as usual, considerable modifications in the eruption; the contents of the bullæ soon become purulent; after a time wheals appear, and the bullæ sometimes develop on the wheals.

When the itching is very intense the bullæ frequently abort, the earliest vesicles being torn open by the nails before they can develop fully. When the disease has lasted for years the other phenomena of the long-scratched skin are evolved, such as eczema, ecthyma, or impetigo contagiosa, pigmentation diffuse or in streaks or spots, and thickening with dryness of the skin. The loss of sleep and the constant worry produce considerable nervous depression, and may even wear the patient out; and all the severe forms may have a fatal issue, either directly from exhaustion, or indirectly from intercurrent disease, to which the vital exhaustion renders them vulnerable. These severe forms have therefore been classed by some authors as forms of *P. malignus*, as opposed to the typical *P. vulgaris*, which has been called *P. benignus*, but these terms are superfluous. The *P. pruriginosus* of Hardy is the affection described under *Dermatitis Herpetiformis*, while Hebra and Kaposi call it **P. hystericus**. Many modern authors consider that all cases of pemphigus with extreme itching are referable to *dermatitis herpetiformis*; but, while this is true for many of the older cases, I am convinced there is a residue which is distinct from *dermatitis herpetiformis*, and really belongs to pemphigus.

had been coming out ever since. None of them had quite gone, as they broke and filled again, discharging blood. All regions, including the palms and soles, were involved, but not the finger-ends, but there had been some lesions in the mouth. They were vesicular, from a millet to a pea in size, of a bright mulberry to a dark purple hue, and they stood out conspicuously from there being a zone of pale skin round them. The child was well nourished and not cachectic-looking, but it died a few days after admission, and the right pleura was found to be full of pus, with small abscesses in the liver and infarcts in the spleen. Nothing to show how the septic condition arose; the parents were not poor, and the hygienic surroundings were good.

A well-marked case in an adult came to me with large hemorrhagic bullæ on the soles, a few days before his death from chronic alcoholism, albuminuria, and hypertrophic cirrhosis of the liver.

**Pemphigus circinatus** cases have been described by various observers, but they differ considerably in their features. C. W. Allen \* of New York recorded a case in a woman, æt. forty-five, in whom bullæ arose from the center of a well-defined circinate erythematous base which was much larger than the bulla. In some of them vesicles developed on the circinate border, either discrete or confluent. In some places extensive denuded patches, more or less crusted over, were formed by coalescence of many bullæ. Some of the bullæ arose independently of the erythema. Penrose and myself have met with very similar cases in children. In my case the skin was covered with abruptly margined erythematous rings, with a bulla in the center, which pulsated, growing paler and then brighter with each heart-beat. Some lesions presented vesicles in a ring on the periphery of a red patch, but both cases were different to any case of dermatitis herpetiformis; and the mother said the rings were the sequel of the bullæ, but the appearance of bullæ in the center and periphery of the ringed patch was against this.

Some of the cases published as circinate pemphigus are really the vesicular form of erythema iris, and some are, no doubt, cases of dermatitis herpetiformis.

The following is, as far as I know, a unique circinate form. A lady, æt. forty, who had had two previous attacks in eighteen months, began another with bullæ of the ordinary pemphigus type, which was controlled by salicin. About a fortnight after leaving off the medicine a fresh outbreak occurred resembling the two previous attacks. The whole of the back, the upper segments of the limbs, and to a less extent the rest of the body, were covered with circles from a half to two inches in diameter, while larger gyrate areas were formed by several rings uniting. The border was at first one-sixteenth of an inch, and later increased to one-fourth and one-third of an inch, surmounted by a vesicular portion which formed a continuous ring, and was not made up of separate coalesced vesicles. Each circle began as a pin's head or smaller vesicle, on a red very slightly raised base, and then spread peripherally. Very severe itching, coming on in paroxysms, accompanied the eruption.† The pa-

\* *Jour. Cut. and Gen.-Ur. Dis.*, vol. viii. (1890), p. 471.

† Compare this case with those of Hallopeau's dermatitis herpetiformis en cocardes, Plate X., St. Louis Atlas, and Liddell and Wende's cases.

tient was a delicate woman who had suffered from endometritis.

**Pemphigus of Mucous Membranes.** All forms of pemphigus may attack the mucous membrane of the mouth, and less frequently that of other cavities, pharynx, larynx, nose, stomach, and eye. It is a striking feature of *P. vegetans*. There is a special form in which the mucous membranes are either exclusively involved or the skin lesions are comparatively trivial. Owing to the adhesions of the adjacent raw surfaces its local effects may be very serious; thus, in the conjunctiva it leads to adhesion of the ocular and palpebral conjunctiva, which von Graefe called "essential shrinking of the conjunctiva." \* Whether this is due to pemphigus only is a disputed point. It has occurred at all ages from fourteen months to seventy-six years; some have, and some have not, had bullæ on the skin. I have seen several cases, one in a German gentleman who had in addition pemphigus of the palate and pharynx; it led to adhesions closing the posterior nares and producing loss of smell and taste; the laryngeal and nasal mucous membranes were also involved, and he sometimes had bullæ on the skin. The disease had been going on for years. † He eventually got well, apparently from the administration for a long period of small doses of arsenic. Large doses exerted no influence.

Charters Symonds reports similar general involvement of mucous membranes, but the skin was free. ‡

Many cases are uninfluenced by treatment, and ultimately lead to the death of the patient from marasmus; in a few general pemphigus has supervened, while a case under Colcott Fox commenced as a general pemphigus, and the conjunctivæ were not attacked for some years.

**Complications and Sequelæ.**—Great thickening of the horny layer of the palms and soles (keratosis or tylosis) is occasionally

\* M. Morris and L. Roberts published a case, with colored plate and general summary and bibliography to date, in *Brit. Jour. Derm.*, vol. i. (1889), p. 175. Also Ed. Pergens' "Pemphigus des Auges, 1901," with analysis and full bibliography to date.

† D., p. 251, private notes. The skin lesions are depicted in my Atlas, Plate XII., Figs. 2 and 3. They are quite small, but when they first appeared were the size of a hazelnut.

‡ *Clin. Soc. Trans.*, vol. xxiii., 1890.

seen in pemphigus, as in a case of *P. pruriginosus* related by myself (see *Keratosis Palmæ*), by Besnier and by Quinquaud in a *P. foliaceus*, and also by Besnier and Brocq in *dermatitis herpetiformis*.\* The possibility of the hyperkeratosis being due to arsenic must always be borne in mind, as it has nearly always been given in these bullous eruptions, but Besnier has seen it when no arsenic had been given.

Groups of milium-like nodules, really solid epidermic cysts, are sometimes produced on the site of the bullæ, but I do not believe, as some do, that they ever come before the bullæ. I have seen, in what was otherwise an ordinary pemphigus, convex † erythematous swellings left after the drying up of the bullæ.

**Pemphigus Foliaceus** ‡ differs so much from the other forms that if it was not that *P. vulgaris* sometimes lapses into this condition it would appear to be a separate disease. It was first described by Cazenave in 1844. It is very rare, occurring about once in five thousand cases of skin disease, and six cases (five women and one man) have come under my notice. It is one of the few kinds of dermatitis which have a universal distribution, and is characterized by the formation of flaccid bullæ, which speedily rupture and discharge their opaque contents, leaving an inflamed, excoriated, and fissured surface behind.

The disease may be primary, the bullæ showing the *P. foliaceus* characteristics from the first, or they may develop from what appears to be an ordinary, though perhaps severe, chronic pemphigus, the bullæ changing their character. It has also developed from a dermatitis herpetiformis (Hallopeau) and a general exfoliative dermatitis of Wilson (Pringle, Mracek, etc.).

*Symptoms*.—The bullæ are quite flaccid, the fluid only just raising the epidermis irregularly in circumscribed patches from

\* Brocq thought my case was a dermatitis herpetiformis, because the patient had red patches on the trunk when first seen; but these marked the site of former bullæ, and were not the erythema characteristic of *D. herpetiformis*. It is reported in *Brit. Jour. Derm.*, vol. iii. (1891), p. 170, and at Figs. 3 and 4, Plate XLIV., of my Atlas.

† Mary S., æt. forty-four, U. C. H. I once saw an unruptured bulla on the edge of her tongue.

‡ Author's Atlas, Plate XVIII.; Sydenham Society's Atlas, Plate XLVII.

the subjacent parts, or, if the amount of fluid is somewhat greater, it bags into the lower part of the bulla. The contents are turbid almost from the first, and soon become distinctly purulent. The bulla soon ruptures by the extension of the peripheral detachment of the epidermis, but instead of drying up the corium remains moist and exposed between the bulla coverings, which, except at the edges, are adherent, but easily detachable, and the under-surface is moistened with sero-pus and an evil-smelling serum, which gives a faint nauseous odor to the whole room.

The epidermis splits into variously sized lamellæ, and the separation of these flabby crusts from each other leaves an interval of red corium, which exudes like an eczema, and imparts an irregularly tessellated appearance to the affected surface. At first only a few square inches are attacked, but gradually the disease spreads, until in the course of weeks, months, or years, the whole body surface is affected, and there is literally not a sound spot anywhere, though bullæ seldom form on the palms or soles, the skin there being thickened, brittle, and easily fissured. The mucous membrane of the mouth and throat may be denuded of epithelium in patches, and the nails are thin, curved laterally and longitudinally, much furrowed transversely, and may be thrown off. The hair falls out, leaving only thin, small tufts; the eyelids become ectropic; and emaciation is extreme in some cases. When the disease is universal the aspect varies in different parts; where the exudation\* is great, relatively thick flat crusts are formed, partly epithelial, partly from dried exudation; and when thrown off in large patches, the red weeping surface looks like an eczema rubrum. A general papillomatosis was observed by Besnier. Where there is less exudation the crusts are thin and epidermal, separable into their component lamellæ, and of a dirty buff color.

Nikolsky pointed out that there was a diminution of the adhesion between the horny and deeper layers of the epidermis, and Dubreuilh considers that this sign is present in the whole of the pemphigus group. Naserow asserts that this disunion of the stratum corneum from the stratum lucidum exists over

\*Hallopeau describes a case of this kind as a new variety, but the form has been recognized for a long time and was described in a previous edition. Hallopeau, *Annales de Derm.*, vol. ii. (1901), p. 1094.

the whole skin even where there are no bullæ, and considers it diagnostic of *P. foliaceus*. In an advanced case the formation of the bullæ is only to be observed by daily watching, as they form either where the corium has skinned over temporarily or underneath the thin crusts, and rupture in a few hours.

There is a feeling of stiffness and tension of the skin where the epidermis has dried. There is not much itching as a rule, but it is sometimes severe and paroxysmal, and considerable smarting and soreness, owing to the movements of the patient rubbing off the loose crusts, or splitting the skin and exposing the corium afresh to the air.

After the disease has lasted for a considerable time some have febrile symptoms, either intermittent or continuous, but usually the temperature is normal, and may continue so throughout. This was so in two of my cases, one of seven and a half, the other of two years' duration, in which the temperature while under observation never rose above 100° F. until fatal pneumonia set in. The disease is often of many years' duration, and the general health may be good at first, but ultimately it breaks down. The patient wastes, is greatly prostrated, sinks into a typhoid state with low delirium, or falls an easy prey to some intercurrent malady, most frequently of the chest\* or kidneys. It runs its course, however, with exacerbations and remissions. During the latter some parts of the skin heal up entirely, and there may be general improvement, deluding both doctor and patient sometimes into the hope of a recovery, which is soon dispelled by a fresh outbreak of bullæ.

In one of my cases, a woman aged thirty-nine, some of the remissions lasted two or three weeks, but they were seldom complete. In this case a severe cold preceded an extensive outbreak of ordinary pemphigus, which lasted over two years. Then she had "a severe influenza," and the bullæ came out more extensively than ever and assumed the character of *P. foliaceus*; her health then broke down, and she felt so ill that she had to give up her employment. The rash was always worse at the catamenial period, which had ceased two years before admission.

\*In Martha W., æt. thirty-two (P. M.), there was double pneumonia, pleurisy, and pericarditis. No visible nervous changes in the cord, medulla, or brain, either macro- or microscopically.

The examination of the urine for twenty-three consecutive days was made by Dr. Halliburton, then my clinical clerk, and gave the following results. The daily average quantity of urine was 868 c. c. (31 ounces), the average quantity of urea 12.14 grams (187 grains), ranging from 8.58 to 14.98 grams, and the quantity of phosphates was 1.966 grams (30 grains). The diet was kept as uniform as possible. The great diminution in urea was partly due, no doubt, to her being at absolute rest in bed. Her weight was 129 pounds.

In a case of Hallopeau's \* of eight years' duration, in whom osteomalacia developed, there was half the normal quantity of urea, three times more than the mean normal of phosphates, and five times more than the normal of phosphate of lime.

I am not aware of any typical case occurring in childhood, Vincent Hall's † case being of a different character. A boy of eleven years was suddenly seized with redness and swelling of the face, then bullæ appeared and in two days covered the face, which became a mass of scabs. This was followed by their development over the whole body surface, and within a few days the skin exfoliated in masses four to six inches square at the rate of a dustpanful a day. Although delirious for a few days he had a ravenous appetite for solid food, and was quite well in twenty-eight days from the onset. Although there were bullæ and exfoliation enough, this was not true *P. foliaceus*. So, too, in Hellier's case ‡ of an apparently healthy new-born infant, in whom on the eleventh day redness of the skin was followed on the next with large flaccid bullæ with serous contents. They rapidly extended over the trunk with extensive denudation of the surface, and the child died on the fourth day of disease. It was probably only a severe *P. neonatorum*.

*Etiology.*—Very little is known on this head. That chills have a distinct influence in some instances in the production of *P. foliaceus* is pretty generally acknowledged, and I have already given an example of such a circumstance. Schwim-

\* *Annales de Derm.*, etc., vol. xi. (1898), p. 979.

† A case of pemphigus foliaceus, recovery. *Brit. Med. Jour.*, July 11, 1896.

‡ Pemphigus foliaceus in the newborn. *Brit. Jour. Derm.*, vol. xi. (1899), p. 18.

mer also gives a well-marked case of it, and there are many others on record. It has already been pointed out that some cases of persistent *P. vulgaris*, dermatitis herpetiformis, pityriasis rubra, and other forms of dermatitis, lapse into *P. foliaceus*.

Violent mental emotion immediately preceded a case under Hallopeau.

Du Mesnil de Rochemont \* records a case clearly traceable to a thorn in the thumb producing a whitlow and lymphangitis with multiple suppurations along the limb. Shortly after pemphigus developed, and was limited to the same limb; then red spots gradually spread over the whole body, and after some time pemphigus foliaceus was fully and typically established.

The *Histology of P. foliaceus* has been investigated by Unna, Nikol-sky, Leredde, etc., with general agreement. There is great elongation of the papillæ and interpapillary cones, and the rete over the papillæ is much thinner. The epithelial cells in the hypertrophied cones are swollen, softened, and edematous, and the spaces between them are enlarged and contain numerous migratory cells. There is great blood and lymphatic vascular dilatation; the connective tissue is swollen, and there are abundant migratory cells all through the derm and hypoderm.

In the blood Leredde found, in two cases, diminution of red corpuscles, increase and alterations of white corpuscles, diminution of hemoglobin, and considerable increase of eosinophile cells.

These blood changes are similar to those in *P. vegetans* and dermatitis herpetiformis, and bring all these diseases into line, Leredde thinks, and he calls them "hématodermes"—i. e., blood diseases, to which the cutaneous lesions are secondary. He thinks that various toxins act on the bone marrow which charge the blood serum with substances which excite the skin lesions. He discusses and rejects Neusser's theory that the skin changes determine the formation of eosinophile elements in the skin, whence they are absorbed into the blood, and that of Ehrlich and Lazarus, that the skin lesions produce a chemiotactic substance which irritates the bone marrow and so produces eosinophilia.

**Diagnosis.**—*P. foliaceus* has to be distinguished from other forms of universal dermatitis, such as general eczema, pityriasis rubra, lichen acuminatus universalis.

It resembles a general *eczema rubrum* very closely, but in *P. foliaceus* the crusts are mainly epithelial and of large size, while in eczema they are chiefly composed of dried exudation and not often large. Although the exudation may be continuous, it is much less than in eczema of corresponding severity. Moreover,

\* *Arch. f. Derm. u. Syph.*, vol. xxx. (1895), p. 103. Good abs. in *Annales*, vol. vi. (1895), p. 142.

a universal distribution of eczema is extremely rare, while it is the rule in *P. foliaceus*, if it has lasted long. Whenever, therefore, what appears to be a universal eczema is present, the probability of its being *P. foliaceus* should be borne in mind, and daily observation will soon establish the presence or absence of the characteristic large flaccid bullæ of the *P. foliaceus* eruption, and all doubt is then set at rest. The existence of the bullæ and the presence of discharge will prevent confusion with  *pityriasis rubra* or *lichen acuminatus*, which are both dry diseases, though the resemblance is great in certain parts when the bullæ have temporarily ceased to be evolved, but in *pityriasis rubra* the scales are thin and papery, while in *P. foliaceus* they are comparatively thick. In *lichen acuminatus* there is great thickening of the skin and moderate scaliness, and the characteristic papules are always to be found in some part or other. *P. vegetans* differs from *P. foliaceus* in the ulceration, the papillary hypertrophy, the mouth affection, and the absence of universality.

The prognosis and treatment are given with those of other forms.

**Pemphigus Vegetans.\*** Neumann † was the first in 1886 to identify the disease as a form of pemphigus, but the affection had been previously described by Kaposi ‡ in 1869 and again in 1873 as syphilis vegetans, while Auspitz, also in 1869, described two cases as herpes vegetans. I met with a typical instance in 1887, then the only one in England recognized as belonging to this category, though Hutchinson appears to have seen several cases before this, but was unaware that it had been already described by German observers. Some of Hutchinson's were of a mild type, the mouth being chiefly affected, and the skin only a very little. These recovered under treatment, and it is open to discussion as to whether they were really cases of *P. vegetans*. Three typical cases have come under my notice since 1887, § one through the kindness of Mr. Hutchin-

\* Author's Atlas, Plate XIX.

† *Viertelj. f. Derm. u. Syph.*, vol. xii., 1886, with plates and references.

‡ *Die Syphilis der Haut*, 1873, Plates LXIII. and LXIV.

§ Published in *Med. Chir. Trans.*, vol. lxxii. (1889), p. 233, with bibliography up to date. Since then cases have been published by Haslund of Copenhagen, in Danish; by Müller of Hamburg, two cases, *Monatsh.*

son. This patient had been under Köbner in 1890. He had suffered from sore mouth since 1885, and bullæ first appeared in October, 1890. Köbner scraped and cauterized the growths in the inguinal regions, applied tincture of iodine, and gave arsenic extensively, and pronounced him cured in March, 1891. Except for slight relapses in the mouth he remained well in 1892 and 1893, but in 1894 bullæ and vegetations started again, he came under Hutchinson in August, and died in April, 1895. The case is unique in its duration, apparent cure, and fatal relapse. Although some sixty cases are on record, *P. vegetans* is fortunately very rare, as fully developed cases are not only almost uniformly fatal, but entail more suffering than any other form of skin disease.\*

*Symptoms.*—Without any preceding illness or any apparent cause the first symptom in the great majority of cases is pain on eating and swallowing, and on examining the mouth the mucous membrane is white and more or less detached, or if very recently formed there may be an unruptured bulla. Any part of the mouth, tongue, palate, pharynx, and larynx may be affected, and at a later period the nares,† conjunctivæ, or vulva also.

A few cases have commenced in other parts; in one of mine

*f. prakt. Derm.*, vol. xi., p. 427, adopting Unna's new name, erythema bullosum vegetans. He also collected twenty-four cases, and read a paper on them at the Bremen reunion of physicians and surgeons in 1890. A case from Russia is reported in Sajous' *Satellite*. Marianelli published an Italian case; abs. in *Viertelj. f. Derm. u. Syph.*, vol. xxii. (1890), p. 236. Nevins Hyde reports a case from America, still alive at time of report, in *Jour. Cut. and Gen.-Ur. Dis.*, vol. ix. (1891), pp. 412, 459. He found and cultivated a bacillus and coccus from an unruptured bulla, but without any proved significance. In the same volume, p. 332, is a case of *P. foliaceus malignus*, by Munro and Schwartz, which reads like *P. vegetans*, except that papillomata are not mentioned; in *Lancet*, May 23, 1891, Pagan Lowe of Bath reports a case; and in *Brit. Med. Jour.*, June 9, 1894, F. Cuthbert reports a case under the name of *P. foliaceus*. *P. vegetans*, therefore, is clearly a very definite and cosmopolitan clinical entity.

\* Köbner published this case with two others and some valuable observations in *Deutsches Archiv f. Clin. Med.*, vol. liii. (1894), and vol. lvii., p. 63, with two more cases. Full French *résumé* in *Annales de Derm.*, vol. v. (1894), p. 890; vol. vii. (1897), p. 816; and Hutchinson published the sequel and analysis of the history in *Archives of Surg.*, vol. viii. p. 129, and colored Plate 156, vol. ix., p. 30.

† In a case of Neumann's the nares were the first part attacked.

bullæ on the chest were the first signs, and the axillary border, abdomen, and genital region have been the starting points in some cases.

After a variable interval of days or weeks, occasionally much longer, bullæ of ordinary appearance, either singly or in groups, come out on the hands, feet, axillæ, and groins, and subsequently on other parts of the body. But instead of drying up as usual they remain excoriated, or ulcerate deeply and sometimes extend serpigginously, while in the folds, such as the groins and axillæ, they fungate into papillary excrescences, which may project half an inch above the surface, secrete a viscid offensive fluid, and closely resemble condylomata. They may also occur in other regions, and in a few cases quite early in the disease.

Some of the excoriations may heal in the center, or altogether, leaving pigmentation or papillary incrustation, but most of them remain as raw surfaces, especially where there is pressure, such as on the back of the head, shoulders, and scrotum; numerous small bullæ and vesicles may often be observed round some of the excoriations, and form one mode of their extension. The matrix of some of the nails is not infrequently attacked, producing a condition resembling onychia maligna. Fresh crops of bullæ lead to more and more denudation of the skin, the whole back becoming raw and sodden in some cases; nutrition is interfered with, owing to the extent of surface involved, and from the condition of the oral mucous membrane, which interferes with the digestion of food; and in some cases the great loss of albumin and the presence of diarrhea. The sensory symptoms are those of burning and itching, but, except in the mouth, pain is only experienced when changing the dressings, which is absolutely necessary owing to the penetrating and insupportably nauseous feter of the decaying epithelium. Tremor of the muscles even in repose is often to be observed, according to Herxheimer, when the skin is extensively involved. The disease is invariably fatal in from three to twelve months in most cases, either from exhaustion or from intercurrent disease. The temperature is often raised, but seldom to more than 102° F. Examination of the blood \* has

\* In Dubreuilh's case 42 per cent. eosinophile cells, 44 leukocytes, 14 lymphocytes. In Neumann's case 16,000 white to 4,100,000 red corpuscles,

not yielded any practical results. There appear to be cases in which there are mouth lesions while the skin is not at all involved; such cases often recover under treatment, but while some of them are inchoate *P. vegetans*, others have possibly been erroneously diagnosed.

Hutchinson asserts that vegetations are exceptional; while I should admit that they are not absolutely essential, as they may cease, or be removed by treatment, and possibly never be present at all sometimes, I should speak with diffidence of any case in which they were entirely absent,\* unless the case ran an unusually short course, as in Stopford Taylor's case.† More or less papillomatous development has been occasionally observed in other forms of pemphigus, such as *P. foliaceus*, and also in dermatitis herpetiformis, but this is an accidental complication common to many forms of dermatitis, and does not bring them into relation with the well-defined morbid condition described, in which vegetation is only one very prominent symptom amongst others equally important.

Hallopeau ‡ has described five cases of a vegetating affection which he has finally called *Pyodermite végétante*. It

an excess of eosinophile cells, and 85 per cent. hemoglobin. In the Danlos Hudelo case only 6 per cent. eosinophile cells; lymphocytes, 14 per cent.

\* A man, æt. thirty-six, came to U. C. H. in 1899, No. 346. His disease began with conjunctivitis, three days after cleaning out a stable drain; three days later the mouth was attacked, and a greater part denuded of its mucous membrane; bullæ came on the genitalia. The bullæ were small and came out also in various parts of the body, but not in the axillæ and groins, and there were no vegetations. He died in three months from the onset with high temperature (104° F.) toward the end. Neither the blood nor the bullæ yielded anything to cultivation. P. M.—There were no visceral changes, the principal ones being about the mouth and genitals.

† Two fatal cases of pemphigus, *Brit. Jour. Derm.*, vol. vi. (1894), p. 177; also a case by Filaretopoulo, fatal in eight days, *Mal. Cut.*, vol. viii. (1896), p. 556.

‡ *Internat. Cong. Derm.*, Paris, 1889. *Comptes Rendus. Archiv f. Derm. u. Syph.*, vol. xliii. (1898), p. 289, and vol. xlv., p. 323. Good abs. in *Annales de Derm.*, etc., vol. x. (1899), p. 103. Colored Plate in International Atlas, 1890, p. vii., and in his treatise with Leredde. See also Hallopeau's description of the transition case and discussion thereon, *Annales de Derm.* vol. xi. (1898), p. 969, in which Darier considers that the histology supports Hallopeau's view, while Leredde is equally positive that the skin and blood lesions prove its identity with dermatitis herpetiformis. In *loc. cit.*, p. 1055, he gives a second note on the case.

differs a great deal from pemphigus vegetans, but he thinks it is really a pustular form of it, as he has seen the two forms in the same subject both successively and concurrently; otherwise from his description it appears to me more nearly allied to impetigo herpetiformis than to *P. vegetans*, but it generally takes a more favorable course than either of those two lethal diseases. It is probably better to keep them apart until further connecting links are discovered.

The eruption commences in the genital region or on the lips, mouth, or fingers, the primary lesion being a pustule on a red base. The pustules multiply in close groups, which extend peripherally with a prominent border, while the center dries up into crusts, which soon fall off and leave deep red staining. New pustules appear at intervals at the periphery of the plaque. Hallopeau considers that it extends by auto-inoculation and tends to spontaneous healing with deep stains, but not scars in most cases, but in some there have been indelible scars. The prognosis is relatively favorable, and local antiseptics are sufficient to cure it; it is, however, liable to return and take the more serious form of *P. vegetans*.

"It differs from impetigo herpetiformis by the depth of the suppurations, by the absence of epidermic elevations from below in gyrate areas, by the absence of febrile reaction, and by its prognosis being less grave" (Hallopeau).

*Etiology.*—Of this we know practically nothing. *P. vegetans* attacks both sexes, but women much more frequently than men. It occurs chiefly in middle-aged adults, and I am not aware of any case in a child or in extreme old age.

In Haslund's case a whitlow from a splinter was followed six weeks later by superficial gangrene of the point of the finger, and other whitlows followed on the fingers and toes; four days later bullæ appeared in the mouth and on the labia majora, and that case followed its usual fatal course in seven months. Compare this with de Rochemont's case of *P. foliaceus* from a similar cause.

*Pathology.*—It is still a moot point as to whether *P. vegetans* should be considered a special disease or a variant of pemphigus. The constant presence of successive crops of bullæ if the skin is attacked at all, and the fact that the individual symptoms of *P. vegetans* may be present in different cases of *P. vul-*

garis, are strong arguments in favor of the pemphigus view. Unna's theory, that it is a form of erythema multiforme, and Tommasoli's, that it is malignant pemphigoid condylomatosis, meet with no support outside their immediate spheres of influence. That the disease is due to a toxin acting on the nervous system is probable, but like Leredde's theory of *hématodermite*s, unproved. That the pseudo-condylomatosis is due to micro-organisms, probably staphylococcus aureus, is shown by their disappearance under microbicide applications.

Herxheimer \* found cells of Langerhans in the epidermis, but, like most previous observers, failed to find any organisms which could be regarded as pathogenic. L. Waelsch found pseudo-diphtheria bacilli in two cases, which had a strong lethal effect on rabbits and guinea-pigs, but he could not prove that it was the pathogenic agent; at the same time, Behring's anti-toxin prevented death in animals while the control animals without it always died in thirty to sixty hours. Diphtheria antitoxin in Waelsch's second patient improved the condition of the mouth, but not of the rest of the body, and the patient died nine days after the injection with fever prostration and delirium. Leredde finds eosinophilia and other blood changes similar to *P. foliaceus* and dermatitis herpetiformis. In a man aged twenty-three † Westberg found changes in the columns of Goll and the posterior root zones in the cervical region; in the dorsal region there was diminution of nerve fibers and increase of the connective tissue in the white substance; there was atrophy of the anterior roots of the lumbar region. He ascribed these changes to a toxin producing parenchymatous degeneration and atrophy of the cord, such as occurs in many acute infectious maladies, and also at the same time the skin changes which are not secondary to the cord changes.

*Etiology.*—There is much hypothesis, but very little ascertained fact, in the etiology of pemphigus generally. Sex has so little influence that while Kaposi, on the strength of 103 cases, states that it is three times more frequent in males than

\* K. Herxheimer, *Archiv f. Derm. u. Syph.*, vol. xxxvi. (1896), p. 141, with table of twenty-seven published cases. Abs. in *Annales*, vol. vii. (1897), p. 817. Waelsch, *loc. cit.*, vol. i. (1899), p. 71; vol. lii. (1900), Heft 3, and *Monatsh.*, vol. xxxi. (1900), p. 31.

† Abs. in *Annales*, vol. vii. (1896), p. 70.

in females, other statistics give the preponderance the other way. It is, however, certainly more frequent in children and infants than in adults, but the endemic form among infants has already been shown not to be true pemphigus.

Hereditary \* tendency occurs in epidermolysis only, but the occurrence of bullæ on the site of local injuries may also be seen occasionally in other forms of pemphigus.

The special etiology of acute, vegetant, and foliaceous pemphigus has been given under their respective heads.

Kirschner carefully observed a case of a man who, in his work, was subject to great vicissitudes of temperature. After a chill, when sweating, the secretion gradually ceased, and pemphigus developed, and was stopped when the sweat secretion was restored; other attacks were brought on by his resuming his work, and again stopped by sudorifics; finally the attacks ceased when he gave up his employment.

In a severe case of Payne's worry and anxiety appeared to be a chief factor.

*Pathology.*—Although falling far short of proof, the frequent association of nerve lesions with bullous eruptions is strongly in favor of the nervous system being, at least indirectly, responsible for the production of pemphigus, and this is to some extent corroborated by the efficacy of arsenic in its treatment. What the nervous defect is it is impossible to do more than conjecture, but it lies probably in the vaso-motor centers, and Schwimmer and others regarded it as a trophoneurosis. The more modern doctrine of toxins affecting the nerve centers has been almost proved for acute pemphigus, and is the most probable explanation for the more chronic forms. The exciting action of chills, demonstrable in a few cases, may be explained by the probable assumption that after a chilling of the surface there is in the reaction vascular dilatation and an absorption from the intestine of auto-toxins into the circulation.

Hypothetic as these views are, others which regard the disease as due to excess of ammonia in the blood (Bamberger), defective kidney elimination, etc., rest upon a much more slender basis.

\* Kaposi gives an instance in which a young man, his mother, sister, maternal uncle, and half his children had it, but this was also probably epidermolysis bullosa.

**Anatomy.**—The following observations are limited to the bullæ of the ordinary chronic pemphigus. Most authors regard the actual formation of the bulla as due to an inflammation of the papillary layer, with outpouring of fluid from the vessels, but Auspitz calls it an acantholysis, or loosening of the prickle-cell layer, by the sudden escape of fluid from the vessels, destroying the young prickle cells and lifting up the epidermis as a whole. Any inflammatory phenomena, he thinks, are secondary.

The anatomy of the bulla has been investigated by, among others, Haight, Hebra, Kaposi, and more recently, Kromeyer, Luithlen, Jarisch, and quite recently by Audry and Danlos, Déjerine and Leloir in France, Kreibich in Germany, and by myself, and the contents have been analyzed, with varying results, by several observers.

The bullæ have not all been taken from the same kind of case, but Audry and Danlos' own observations and analysis of those of others show that even in the same patient all the bullæ have not the same anatomical position, but may be:

1. Developed between the horny layer and the stratum granulosum.
2. Between the rete Malpighii and the cylindrical basal layer.
3. The papillæ may be quite bare, either by the whole epidermis being raised up or by secondary destruction of the epithelial elements which cover the papillæ.

They point out that the slight changes of the papillary layer, mainly vascular, show that there is no true dermatitis. In the most superficial vesicles the rete may be normal, and they come to the conclusion that the epithelial changes are only the most visible part of the effects of a general toxin, which also produces leukocytosis, adenopathy, and urinary changes, etc., and, as Audry forcibly puts it, "The bulla of pemphigus signifies no more than the râles of pneumonia."

Some years ago I examined a bulla a quarter of an inch in diameter from an ordinary chronic pemphigus, and found that, by examining sections made from the edge to the center of the bulla, it could be ascertained that the bulla was not superficial, but the fluid poured out stretched the lower rete cells until they were separated from the corium, and, as the process continued, the lower layers were destroyed and the upper compressed until, at the center, the roof was formed by the horny layer and about the upper two-thirds of the rete, with here and there a fragment of a sweat duct or hair follicle depending. At the border, the lower stretched cells of the rete were still present. The fibers of the corium below the bulla were compressed, and there was free cell-infiltration of the upper layers (Fig. 19). Robinson, however, found that in other bullæ the fluid was between the rete layers, and the horny layer was unchanged, while the papillæ, corium, and subcutaneous tissue were infiltrated with leukocytes, and the blood-vessels were dilated. And in an anomalous pemphigus Pernet found the cleavage at the junction of the

\* "Recherches sur les altérations de la peau, du sang, et des urines dans un cas de Pemphigus chronique vrai." Par Audry, Gérard et Danlos. *Annales de Derm.*, etc., 4th series, vol. ii. (1901), p. 113. Critical references to observations of previous workers.

stratum lucidum and stratum corneum, which agrees with many German observations. Audry's most recent observations, as above summarized, explain their differences, and confirm what I stated in the second edition of this work, viz., that: "No general statement as to the position of the bullæ can be made in the face of such discrepancies, and probably it varies with the age and size of the bulla and in different instances. There is no scarring except in rare cases." Eosinophile cells in the blood and bullæ have been found in excess in chronic ordinary pem-

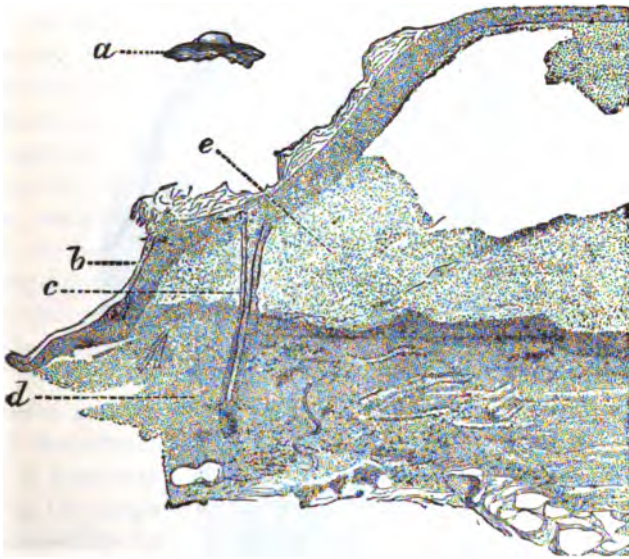


Fig. 19.—Pemphigus bulla.  $\times 50$ .

*a*, natural size of bulla; *b*, whole thickness of epidermis lifted up to form the roof of the bulla; *c*, sweat duct traversing bulla; *d*, enormous round cell-infiltration of the upper layers of the corium; *e*, coagulated albuminous contents of bulla.

phigus (Audry, Neusser, etc.). Their presence, while admitted by Leredde in *P. foliaceus* and *P. vegetans*, was denied by him for *P. chronicus*, and he desires to group the first two with dermatitis herpetiformis as blood diseases on the common ground of eosinophilia, and differentiating them from *P. chronicus* from its supposed absence in that affection. As it appears, however, to be sometimes present, and as Audry has shown that, while present in recent bullæ, it may be absent in older ones, it is evidently premature to found fundamental distinctions on such a disputable factor. In further researches it is important to state the exact clinical characters of the bullous eruption and the age of the bulla examined.

In the main, the contents represent blood serum, and a few leukocytes, even when it is clear, and many may be found when it is turbid. Gibier found micro-organisms in the fresh bullæ of acute pemphigus and in the urine; according to him they are beaded organisms, consisting of two to twenty individuals joined together in the adult state, and of rounded granules isolated or grouped in the young state. Recent observers have



Fig. 20.—Pemphigus vegetans.

Skin from groin, showing enormously hypertrophied papillæ; papillary outgrowth; cell infiltration in papillary layer; dilated vessels; sweat coil with cell infiltration between the coils.

found streptococci, and staphylococci are always present. In the chronic form the presence of micro-organisms is not so constant.

In a case of subacute recurrent pemphigus in a child, I found a few micrococci in recent bullæ, and under cultivation in peptonized gelatin minute bacilli developed. Thin, on the other hand, in one case failed to find them after repeated search. The chemistry of the contents is uncertain; generally feebly alkaline in reaction, it is occasionally slightly

acid—from acetic acid, it is said. Albumin and phosphates are always present, but lactate of soda, chlorids, cholesterin, ammonia, and urea, uric acid, creatinin, leucin, tyrosin, etc., have been described in different instances, but their very variability negatives the idea of their being of any etiological importance. Various changes have been found in the internal organs, but nothing constantly or even frequently enough, except as regards the nervous system, to make one regard them as otherwise than fortuitous.

*Diagnosis.*—In chronic pemphigus the bullæ appearing in crops at short intervals, without apparent cause, antecedent symptoms, or lesions, or at most only hyperemia of the skin, the process continuing for weeks, months, or years, constitute the most distinctive features, and such cases offer no difficulty in diagnosis, but *P. acutus* has to be distinguished from those diseases in which bullæ occur as an accidental feature, so to speak, such as erythema bullosum and urticaria bullosa, or where the bullæ form instead of vesicles, as in varicella bullosa, impetigo contagiosa, eczema, herpes, pompholyx, or where the bullæ, though pretty constant, form only a part of the eruption, as in hydroa, herpes iris, etc.

In *P. acutus* there is no antecedent lesion, as in *P. chronicus*, but there may be smart febrile symptoms and severe constitutional disturbance. In bullous erythema exudativum and urticaria, in hydroa and herpes iris, the other lesions present give the clew to the diagnosis. Erythema exudativum and its ally, herpes iris, generally run a definite course of a few weeks; and while some febrile symptoms may be present, they are rarely severe. The erythema papule or nodule, also, always precedes the formation of the bulla which forms on it. In herpes iris the central bulla with the rings of varying hues is diagnostic. In urticaria bullosa, again, the bulla appears on the wheal, and the intense itching and tingling would distinguish it from anything but *P. pruriginosus*. In this last, also, wheals appear, but they are the secondary lesion, and only develop after the disease has existed for some time. Moreover, the bullæ are not always formed on the wheal, as they are in urticaria bullosa, though such is the case sometimes. The diagnosis from dermatitis herpetiformis is given under that disease.

In varicella bullosa, the fact that it was epidemic, the short, favorable course, and the co-existence of cases of the usual type would be sufficient.

*Prognosis.*—The fate of pemphigus patients varies greatly, and we possess but few data to enable us to anticipate it.

The majority of *P. chronicus* cases get well in the course of weeks or months, if judiciously treated, though several recurrences in future years must be expected. A few persist for an indefinite period, for years or even for life, and of them a certain number may lapse into *P. foliaceus*. Many of these may lead to the death of the patient by exhaustion or by laying him open to intercurrent disease. Which of these several courses the disease will take we are wholly unable to predicate; the longer the eruption lasts the more gloomy is the prospect. If the patient is advanced in years, the prognosis must be guarded, as he not infrequently does badly, sinking into a typhoid condition. The presence of albuminuria is another bad element, and when the characters of the bulla are of the destructive order (*P. crouposus*, *diphtheriticus*, or *gangrænosus*) the outlook is especially bad. Except when the disease is of this kind, the pemphigus of infants and children is usually amenable to treatment. *P. pruriginosus* is very chronic, and there is no knowing how long it will last. The danger of *P. acutus* is in proportion to the extent of skin involved and to the constitutional disturbance, which may be so great as to destroy life in a week or two.

*P. foliaceus* is almost invariably fatal, though the cases often last for many years. Sherwell \* reports the case of a girl, æt. seven, who recovered from typical attacks in 1877 and 1878, in which linseed oil, outside and in, appeared to be of benefit. She remained well until 1889, when she had a milder and less typical attack, which lasted less than three weeks. The age of the patient is as exceptional as the other features, all other cases having been adults. A case from Unna's clinique, a man æt. forty-one, also recovered; he had continuous baths of sulphate of iron and tannic acid—*i. e.*, ink!—to which his recovery was ascribed. *P. vegetans* is almost as lethal, and more rapid in its course, but early treatment before the skin is much involved offers some chance of recovery.

*Treatment.*—Until within the last few years in the majority of cases of chronic pemphigus the internal administration of arsenic

\* *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. vii. (1889), p. 453; *Brit. Jour. Derm.*, vol. iii. (1891), p. 357.

in some form was the most reliable treatment. It should be given in small doses at first, such as two or three minims of the liq. arsenicalis, increased until it appears to have a hold on the disease, or until the limit of tolerance of the patient is reached. I am, however, far from giving it the title of "specific" that Mr. Hutchinson assigns to it; it approaches most nearly to the position he claims for it in the case of children, but fails in many older persons, and frequently controls without curing the disease. It should never be given where the digestive organs are not in a healthy condition, nor where there is any defect of health which can be detected and otherwise treated.

I have found in salicin a most valuable second string, which often succeeds when arsenic fails, and as it seldom disagrees can be given in cases where arsenic would not be tolerated in adequate doses. Like arsenic itself, it sometimes controls but fails to cure, but in a large proportion of cases it stops the production of bullæ altogether. It must be given in full doses, beginning with 15 grains dissolved in water, three times a day. The dose may be increased up to 30 grains. Neisser advocates subcutaneous injections of strychnine. It is worth trying when other measures fail.

In some instances quinine in large doses, iron, cod-liver oil, and general hygienic measures, such as a strongly-supporting diet, a bracing climate, with rest of body and mind, as far as that can be secured, effect a cure when so-called specifics fail.

Iodid of potassium should never be given; it generally aggravates bullous eruptions, and I have known them become gangrenous under its influence.

*Locally*, dusting powders, such as boric acid with oxid of zinc and starch, are often useful; but on the whole in my experience, lotions, such as the lactate or glycerin of the subacetate of lead (one to six water) or calamin liniment, give most relief from the feeling of tension and soreness, but local applications have no curative effect. Where the roof of the bullæ is prematurely removed, boric acid ointment would be the most suitable application.

In *acute pemphigus* it is very doubtful whether internal treatment has any effect, and the rapid course leaves little time for remedies to act. In view of the septic character of many cases quinine, in from 5 to 10 grain doses in an effervescing potash

and ammonia mixture, should be given every three or four hours.

If this fails, indications for treatment should be carefully sought after and vigorously followed up, but they are too often absent, and all that is left is to combat adverse circumstances as they arise, with a general supporting treatment from the first, in anticipation of the exhaustion which too often supervenes.

The same local remedies as those recommended for chronic pemphigus give temporary relief.

In *P. pruriginosus* the itching may be temporarily relieved by the antipruritic lotions recommended for chronic urticaria (Lotions, F. 20 to 38), such as the liq. carbonis detergens, terebene, sanitas, nascent sulphur, etc. Internally, arsenic is not very successful, but in adults, atropia injections of 1-150 to 1-60 of a grain might be tried.

In *P. foliaceus* internal treatment of all kinds has failed entirely, either to cure or alleviate. Local means, similar to those for eczema, give relief and heal the skin temporarily; the oleate of zinc or lead, or boric acid ointments, and the lotions and liniments before alluded to, are some among many suitable applications. Continuous baths of simple warm water, where practicable, give the most relief; in Vienna the patients have lived in the baths for months in comparative comfort.

In *P. vegetans* Hutchinson has shown that small doses of opium, ℥iij to ℥x liq. opii sedativi three times a day, sometimes controlled the severe and cured the milder form. It was not tried till late in the disease in his three fatal cases, but was so in my cases, but unfortunately without success. Arsenic had some controlling influence in one of his cases for a time, but it generally fails egregiously. My patients experienced great relief from local disinfecting measures, the foul odor having previously pervaded the whole ward. As nearly the whole back becomes excoriated, they should be laid on lint soaked in carbolic oil, one in forty, and another sheet of it applied in front. The papillary growths in the axillæ and groins should be freely dusted with iodol, and the mouth frequently rinsed with liq. sodæ chloratis, and permanganate of potash solution sprayed in, several times a day. By these means all fetor is removed and the patient made much more comfortable. Obvi-

ously, such a patient should be placed on a water-bed from the first, and the dressings not changed more frequently than is absolutely necessary, as every movement gives pain.

## HYDROA.

*Deriv.*—ὕδωρ, water, or more directly, ἵδρωα.

Hydroa was a term used by many of the older dermatologists for various bullous and vesicular eruptions, and had fallen into disuse until revived by Bazin for certain groups of bullous eruptions which, in their clinical aspects, stand midway between erythema multiforme and pemphigus; but some of them are separated by a very narrow line from some forms of pemphigus, such as P. pruriginosus.

Recognizing that there were such eruptions hitherto unclassified, many French, English, and American dermatologists have taken up the term, while the German school for the most part ignore it.

Hutchinson \* used the term for a bullous eruption produced by iodid of potassium, but such an eruption scarcely requires a separate name; Bazin † proposed three varieties—H. vésiculeux, H. bulleux, and H. vacciniforme. It was subsequently acknowledged, even by Bazin himself, that H. vésiculeux is the disease that Bateman described as erythema and herpes iris; it has therefore no *raison d'être*.

H. bulleux is only one phase of H. herpétiforme, and is now disused. Hydroa herpetiformis was introduced by Tilbury Fox, and was used in the previous edition of this work and in my Atlas for what Duhring subsequently called dermatitis herpetiformis; but this latter term is now so generally adopted that for the sake of uniformity it is placed at the head of the article on the disease. Hydroa vacciniformis seu æstivalis is, therefore, the only one left of the group. Hydroa puerorum of Unna is a subvariety.

\* Sydenham's Society's Atlas, Plate XXXIII.

† "Affections Cutanées Arthritiques," pp. 194, 261, and 403.

**DERMATITIS HERPETIFORMIS (Duhring).\***

*Synonyms.*—Hydroa herpetiformis (Tilbury Fox); Pemphigus pruriginosus (Chausit and Hardy); Herpes gestationis (Milton and Bulkley); Herpes circinatus bullosus (E. Wilson); Pemphigus circinatus (Vienna School); Dermatitis polymorphes douloureuses (Brocq).

*Definition.*—A grouped vesicular or bullous eruption associated with ringed and other erythema lesions, and intense itching.

While Bazin, as already shown, to some extent foreshadowed it, it is chiefly through Tilbury Fox,† followed by Duhring,‡ in some very able papers on Dermatitis Herpetiformis, that we began to get a clear idea of this protean disease. Unfortunately, the great variations in its clinical aspect led different authors in former times to regard these variations as different diseases, and to give them different names, according as one or other feature struck them most; but now that they are all brought into one category it is shown that the disease is not so rare as it was formerly considered to be.

*Symptoms.*—In cases of acute development it may begin with

\* Author's Atlas, Plates XX., XXI., and Fig. 1 of xxii, under Fox's title of Hydroa Herpetiforme. The plates show several of the variations in the clinical characters of the disease.

Plate II., St. Louis Atlas, shows bullous form well, but in Plate X., in concentric circles, the diagnosis is open to dispute. Hutchinson's smaller Atlas, Plates XCIX. and C., shows herpetiform character well.

† Fox, "A Clinical Study on Hydroa," posthumous paper in *Amer. Archives of Derm.*, vol. vi. (1880), p. 16.

‡ Duhring, "Dermatitis Herpetiformis," *Jour. Amer. Med. Assoc.*, August 30, 1884, and several subsequent papers in *N. Y. Med. Jour.*, 1884 and 1887, and elsewhere, collected by New Syd. Soc. in 1893 in "Selected Monographs in Dermatology." Also "Hydroa," *Brit. Med. Jour.*, May 22, 1886, a general view of the subject by myself. See also "Dermatite Herpétiforme," a valuable monograph by Brocq, *Ann. de Derm. et de Syph.*, vol. ix. (1888), p. 1, etc., and vol. x., series iii. (1898), pp. 849 and 945, on "Dermatites Polymorphes Douloureuses," a critical review of the views of other authors and of his own. Discussion, Derm. Soc., Lond., *Brit. Jour. Derm.*, vol. x. (1898), p. 73. In vol. xi. (1899), p. 213, is an abs. of Brocq's criticism on this discussion from vol. ix. of the *Annales*, 1898, October and November.

shivering and slight febrile symptoms, rarely severe, but often the first symptom is only burning or itching, where the eruption is about to appear. The eruption is bilateral, and in the main symmetrical, situated most frequently on and about the axillæ and groins, the flexor surface of the wrists, or on the abdomen or ankles, and is, as a rule, most abundant on the flexor surface of the forearms, the front of the trunk, especially the abdomen, the buttocks, and outer part of the thighs; the legs below the knee are comparatively free, but no part is quite exempt. The mucous membranes of the mouth, pharynx, and larynx, and conjunctivæ may be affected, and the involvement of the gastro-intestinal canal has been suspected.\* The polymorphism, which is one of its most striking clinical characters, is produced by the varying proportion of its three main features; 1. Herpetiform vesiculation; 2. Ringed and other erythemata; 3. Burning and itching.

The eruption, in a typical case, first appears as slightly raised, flattish, rose-red papules about a quarter of an inch, which speedily enlarge to patches of about half an inch in diameter, the center of which soon becomes depressed, and changes to a purplish hue; at the same time the patch extends at the periphery *pari passu* with the enlargement of the center of involution, and so a circle is formed with a raised red margin and a flat purplish center. This part of the process closely resembles an erythema papulatum, passing into an erythema circinatum, but differs from those diseases inasmuch as severe pruritus attends its evolution; circles, or segments of them, may also be formed by the aggregation of papules in this form, or they may form groups. When the circle has reached to an inch or more across, which it may do in a day or two, the vesicular and bullous elements usually appear. These vesicles, as a rule, develop on the spreading border, or on the aggregated papules, varying in size from a pin's head to a pea, or larger; but in some cases bullæ, one inch or more across, are numerous, and sometimes the center of the vesicular erythematous circle is occupied by a bulla, the whole patch resembling, except in

\* In a fatal case of Galloway's ulceration of the intestines was found at the autopsy. For an extensive and primary involvement of the mucous membranes, see Morris and Whitfield's case, *Brit. Jour. Derm.*, vol. ix. (1897), p. 213.

coloring, a herpes iris. The erythemata may continue to spread beyond the vesicles, and, reaching other lesions, cover a large area and form either plaques or even extensive infiltrations\* of a bright red color and thickened, and firm to the touch. Vesicles and bullæ may also arise singly or in irregular herpetiform groups, independently of the erythema, being vesicular from their first appearance; moreover, the erythematous lesions do not all go on to vesiculation. On the development of the bullæ or vesicles the itching ceases and a feeling of burning or tension takes its place. Sometimes burning is the first, or it may be the chief subjective symptom, and is only relieved when the contents of the bleb are evacuated; but, like herpes vesicles, they do not rupture spontaneously, but dry up and leave a thick scale. The contents are usually quite clear, but sometimes become purulent and more rarely bloodstained. In one case micrococci were readily grown by me from the clear fluid of a bulla, introduced into gelatin peptone.

Although there are exacerbations at intervals, there are sometimes no complete remissions, fresh erythematous and vesicular lesions developing almost daily. Erythema, vesicles, bullæ, and pustules may be simultaneously present in different parts of the body.

The course of the disease is long and uncertain, often lasting months, or even years (twenty, Brocq; I have known over ten), unless controlled by treatment, and relapses or recurrences are the rule. In very chronic cases, therefore, the constant scratching may entail the usual consequences, including superficial ulcers, scabbing, boils, lymphangitis, enlarged glands, and lichenification (Hallopeau), though as a rule "the scratched skin" is but little developed, considering how bitterly the patients complain of the itching. As a rule, the general health is unaffected for a long time. Though the loss of rest may wear out the patient greatly, fatal cases are rare except in the aged, and then delirium generally occurs towards the end. As in pemphigus, so in this, scratching or blows will sometimes produce bullæ. Brocq and Tenneson have recorded purpura patches as a complication.

\*In two fatal cases in octogenarians this condition preceded for several days the vesiculo-bullous manifestations. J. 619 and K. 752, Private notes.

The urine has been frequently examined, but though the changes are numerous they are too inconstant to have much clinical value. Oliguria is said to be the rule (Besnier), but polyuria is sometimes present, and Leredde says it is of favorable omen. There have also been found albuminuria, glycosuria, indicanuria (Leredde), diminution of urea and uric acid, and of toxicity of the urine. Hardouin\* records a case in which the attacks always occurred after periods of hypoazoturia and coincided with a return in great part of the elimination of urea. Bar in herpes gestationis agrees with the first, but not the second proposition. Tenneson thinks that marked hypoazoturia is a special feature of the disease, but Besnier has shown that it is a common feature in all forms of extensive dermatitis. On the other hand, Hallopeau and Tête have found an alkaloid in the urine which provoked an eruption on the skin of a guinea-pig. Perrin says that in herpes gestationis there is diminution of toxicity in the urine, and when a cure is effected the toxicity rises again.

*Variations.*—Where all is variety it is difficult to say what is a typical case and what a variation; nevertheless, while the preceding is a fair account of a severe case, there are great differences in appearances, according to the predominance of the erythematous, vesicular, bullous, or pustular elements, and the severity of the itching. Polymorphism is absent in some attacks, or may be inconspicuous.

Sometimes the erythematous element is the only one present, or is so predominant† that the vesicular part may be overlooked. In Frank W., æt. four, flat hemp-seed to pea-sized erythematous papules appeared on the abdomen and thighs, and circinate and gyrate patches, from half to one inch in diameter, developed from these; one gyrate patch extended from the pubes to the umbilicus, slightly scabbed from scratching. This erythema continued several weeks, with the accession of fresh papules from time to time, but no vesicles, and then an outbreak of vesicles, grouped and scattered, appeared on the lower limbs, with a ringed erythema interspersed. Attacks of this kind, and also of the circinate erythema, continued

\* *Annales de Derm.*, etc., vol. i. (1900), p. 1137, gives numerous references to previous work on the subject.

† Master S., æt. twelve, private notes, F. 79, was an example.

at intervals for between two and three years, but there was seldom erythema alone after the first; occasionally there were pustular \* instead of vesicular elements. Again, in a woman, æt. forty-four, the typical rings and segments of circles of papular erythema, attended with moderate itching, came out in crops, but there was no vesiculation at all throughout its course of three or four months.

In Henry N., æt. twenty-nine, the disease had existed only a month; beginning on the flexor surface of the forearm, the eruption extended unequally over the whole body, except the scalp, and consisted entirely of itching, erythematous papules, patches, and circinate forms; vesicles one-eighth of an inch across existed on the palms only; he speedily recovered under treatment.

On the other hand, the bullous element may be the prominent feature. Thus in a youth of eighteen under my colleague, Sir Thomas Barlow, bullæ an inch or more in diameter were present, more or less all over, beginning as small vesicles and rapidly enlarging to various sizes; from time to time crops of erythematous lesions of the usual type came out symmetrically, and on these vesicles might or might not appear, and rings of vesicles with central bullæ sometimes were seen; a few of the vesicles became purulent. In other cases the vesicles remained very small. This man was under my observation for years, with annual recurrences, sometimes slight, sometimes severe, and with every variation in size of the vesicles or pustules, and in the proportion of erythema.

In Samuel P., æt. forty-five, bullæ, without preceding erythema, developed on the ankles and dorsum of the feet only, while on the trunk and wrists there was an exclusive development of the usual erythema forms; he got well under treatment in about six months.

The size of the vesicular element varies within wide limits; a millet seed to a pea is the usual size, but they may be from a pin's head upwards. In a case reported by Morris and Whitfield the lesions resembled those of vaccinia.

Some cases look like a universal herpes zoster,† for which they are sometimes mistaken; others approach to the ordinary

\* Plate XXII., Fig. 1, of my Atlas represents one such attack.

† Plate XX. of my Atlas is a well-marked example.

pemphigus type, and if the bullæ are in circles they are reported as pemphigus circinatus; others, again, as persistent erythema circinatum.

In one case bullæ of the ordinary pemphigus type developed on the feet and small bullæ came out subsequently; on the other hand, G. H. Fox of New York published a case which began as a herpetiform eruption, and lapsed into a pemphigus.

When the pustular element is much developed cases may resemble and are sometimes reported as examples of the impetigo herpetiformis of Hebra. A severe case of this kind has been reported by Fordyce \* in a male, who recovered. Wende's † was severe, but of a different type. There were rings of pustules with erythematous rings around it.

When the itching is very severe the appearance of the disease is much modified by the consequent scratching, and the characters of the disease may be more or less concealed. In Charles B., a stoker æt. fifty-four, the scabbing and excoriations were so great that at first sight pediculosis was suggested, but the distribution not agreeing with that, close examination showed circinate and herpetiform groups of pin's-head papules, with a pin's-point vesicular cap. The patient was much distressed and worn. As the treatment relieved the itching, the true character of the eruption became more evident. In many cases the itching is moderate and only pronounced at night. I have also seen a case in which, with all the other symptoms present, itching was absent; this is very exceptional.

*Circumscribed cases* occur in which the eruption is confined to one or more regions. In the case of a man under me at U. C. H. for years, the eruption was limited to the axillæ and its folds, and sometimes about the gluteal cleft and groins there were grouped pea-sized vesicles with great irritation. Audry mentions one case of a girl of sixteen, who from the age of three was subject to the eruption on the back of the wrists, hands, and bend of the elbows and knees. In another, a woman, æt. twenty-five, it was in the same positions on the upper extremity, but none on the lower. Corlett's case was

\* Fordyce's case, *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. xv. (1897), p. 495, with colored and microscopical plates.

† Wende, *loc. cit.* vol. xix. (1901), p. 171. Compare with Hallopeau and Liddell's cases (*vide pp.* 333-334).

limited to the forearms and thighs, Balzer's to the scalp, back, and leg. Gaucher and Barbe, etc., also record localized cases. Brocq's case left cicatrices and epidermic cysts on the site of the bullæ.

**Herpes gestationis** was the name formerly given to dermatitis herpetiformis when it occurred in pregnant or puerperal women, before its nosological position was understood.

Brocq in his earlier writings divided the diseases into different groups of acute and chronic pruriginous polymorphous dermatitis, and placed herpes gestationis in a third group; but there are intermediate links of every kind, and I have seen exactly the same lesions in a pregnant woman, an elderly spinster, and in a man; the pregnancy is, therefore, only one element in the etiology, and Brocq admits it is only a variety. Out of fifty consecutive cases of *D. herpetiformis* of mine six were of this type.

Once it has appeared it recurs usually with each succeeding pregnancy, being sometimes the earliest indication to the patient of her condition. It then continues usually throughout child-bearing, a violent outbreak ensues a few days after delivery, and then it gets well, either at once or gradually, by the attacks becoming of diminished severity until they reach the vanishing point. Such was the case of Emma H., æt. thirty-four, in whom it recurred in three successive pregnancies. There are, however, considerable variations in its behavior. It may begin at any period of pregnancy, or soon after it.

In Elizabeth G. it occurred in four successive pregnancies under my observation. The first three days after confinement with her fourth child; the second at the sixth month of pregnancy; the third in the eighth month, and the fourth in the seventh month. All the symptoms were present in a marked degree. Barendt's case was more constant; four out of five attacks were in the fifth month of pregnancy, it stopped one month before, and recurred soon after confinement, lasting from one to eight weeks.

Dinah S. in eleven years had seven pregnancies, and had attacks in each one. She and E. G. scratched the bullæ into ulcers on the leg. Latterly S. had never been free from eruption. In Mary W. it missed one pregnancy, but recurred the next.

In Jane F. at the fourth attack, she was found not to be pregnant, but to have cancer of the cervix uteri. She had not been free for three years, and it persisted badly for nine months after her last confinement. It is said that the death of the fetus frequently occurs in herpes gestationis, but I cannot support this from personal experience.

Duhring, Besnier, and Galloway \* also report cases which have persisted after childbirth or recurred independently of it, and even where it has disappeared during pregnancy and recurred when the menses were established. Bulloch obtained a pure culture of staphylococcus albus from the fluid of a recent bulla, in a third attack just after parturition.

**Hydroa Bulleux, of Bazin** or, as Fox preferred to call it, **Hydroa Pruriginosa**, is a very rare form, and is attended at its development with intense itching, and sometimes preceded by slight febrile symptoms, followed by the formation of small bullæ not exceeding the size of a split pea, and commencing as vesicles, without any antecedent lesion. They increase in size, with the contents clear at first, but becoming turbid in a few hours. As the contents get absorbed, slight umbilication is produced, and ultimately the bulla dries up, leaving a thin, leafy scale, or, if scratched, a blood crust; or where many bullæ have coalesced, foliaceous crusts, something like *P. foliaceus*, and when these are thrown off a hyperemic, subsequently pigmented, surface is left. The eruption comes out in a succession of almost continuous crops, the bullæ being discrete or grouped irregularly, but never in circles. It may be partial or general, affecting even the palms and soles, but more abundant in some parts than others, and with free intervals. But the disease does not always begin with bullæ of the preceding characters; thus Fox's case † began with a circinate erythematous

\* In Galloway's case the first three attacks began three days after confinement, the fourth in the fourth month of pregnancy, and continued for three months after parturition; there was eleven per cent. of eosinophilia.—*Brit. Jour. Derm.*, vol. xiii (1901), p. 413.

† Case 7 of Tilbury Fox's paper, *loc. cit.*, which was also under my observation throughout its whole course. A subsequent attack is recorded by Sangster and Bruce on "Rare Form of Itching Vesicular Eruption, (?) Hydroa Bulleux," *Med. Times and Gaz.*, January 5, 1884, with dis-

eruption, like that already described, which thus forms a link with the usual type of dermatitis herpetiformis.

Hallopeau\* has described in a man, æt. sixty-three, an anomalous form arranged in concentric circles of closely crowded vesicles, or, as he calls it, "en cocardes." There were erythematous circles between the vesicular circles which varied from two to six. It resembled one of the forms of Bateman's herpes iris, but instead of being on the extremities, especially the hands, it was almost entirely on the trunk, and was accompanied by intense itching. The concentric arrangement ceased after a time, and then ordinary blebs appeared. Death ensued eight weeks from the onset with acute nephritis. There was a purpuric eruption towards the end. Liddell of Harrogate and Wende have recorded somewhat similar cases, and Erasmus Wilson also in 1874, as "Pemphigus iris." The diagnosis is open to discussion, and I should be more inclined to regard them as an unusual form of herpes iris than of dermatitis herpetiformis.

*Complications.*—Besides those due to scratching, keratosis palmæ et plantæ, as already described in Pemphigus, have been observed by Besnier, Brocq, and myself.

Purpuric patches have been observed by Brocq and Tennesson.

Vegetations following the bullæ resembling those of pemphigus vegetans have been recorded by Hallopeau, Brocq, Wende, and myself. They are probably a product of pus cocci.

In Hallopeau and Brodier's case the nails fell off, and the vegetations disappeared spontaneously in a few weeks, leaving brown stains. Scars, pigmented or not, are only left when there has been severe scratching or suppuration, as in Hallopeau's case.† Hallopeau has observed pemphigus foliaceus

tinctly herpetiform features. Plate LXXII. of T. Fox's Atlas represents one phase of the eruption.

\*St. Louis Atlas, Plate X. Also good critical note by Pringle in English edition. Liddell, *Brit. Jour. Derm.*, vol. viii., October, 1896, p. 385. Erasmus Wilson, "Lectures on Dermatology" (third edition, 1874), p. 124; and Coll. Surg. Museum, No. 12 of 1895 Catalogue, where I have classed it with Erythema iris. In 1875, Catalogue No. 130, Wilson called it Pemphigus iris.

†A case with lichenification, cicatrices, and persistent mental disturbance. *Annales de Derm.*, vol. iv. (1893), p. 774.

supervene in long-standing cases, but Brocq disputes this diagnosis and calls the sequel "Herpétide maligne exfoliatrice" after Bazin.

Brocq \* wishes to widen the conception of *D. herpetiformis* into one vast group called by him *dermatites polymorphes douloureuses*, characterized by:

1. Painful phenomena of variable intensity, but nearly always strongly marked, often out of proportion to the eruption.

2. Polymorphic eruptions more or less erythemato-vesicular, erythemato-bullous, sometimes urticarial, papular, sometimes herpetiform, more often grouped, but possibly disseminate.

3. A marked tendency to successive crops of eruption.

4. Preservation of general good health with few exceptions.

He divides them in four groups:

- I. Acute polymorphic painful cases.

- II. Chronic polymorphic recurring painful cases.

- III. Herpes gestationis cases, or painful polymorphic gestation cases.

- IV. Intermediate or transition cases between the above and other related morbid types.

Each of the above groups has minute subdivisions, and for these and the grounds upon which he founds them the monograph itself must be referred to. Much can be learned from it, but I regret that it has not convinced me of the practical advantages of adopting his views and nomenclature as distinguished from those founded on those of the majority of modern dermatologists.

*Etiology.*—Our knowledge is insufficient to allow of many positive general statements being made. Bazin lays stress on the presence of a gouty predisposition; but my experience does not lend much support to this. Exposure to cold has seemed an exciting cause sometimes; nerve shock and severe mental emotion have immediately preceded the attack in many instances (G. T. Elliot collected ten cases), and nervous exhaustion from worry, anxiety, loss of rest, etc., is probably a predisposing influence.

Its occurrence during pregnancy, and recurrence with several succeeding pregnancies, show that there is some etiological re-

\* *Loc. cit.*, *Annales*, vol. ix. (1898), p. 953.

lationship, probably reflex irritation of the vaso-motor centers; and the irritation of these centers, either direct or indirect, is the most probable pathology, so that this brings it close to pemphigus vulgaris, the difference being more clinical than pathological.

*Age.*—Dermatitis herpetiformis occurs in both sexes, being most frequent in men in spite of the gestation cases of women, and least often in children. A child, *æt.* three, is the youngest I have met with. The oldest case I know of was one of my own, a man, *æt.* eighty-six. It is, however, most common in adults, between thirty and forty, but it is fairly frequent between twenty and thirty, and between forty and fifty.

Bowen has recorded five cases in children apparently due to vaccination, but the diagnosis was not undisputed (*vide Vaccinides*).

*Pathology.*—This can only be conjectured; my own view is that it is the same as that of pemphigus, the difference between the two affections being clinical rather than pathological, and probably dependent on the individual rather than on the toxin. Hallopeau shares this view, while those of the Vienna School who follow Kaposi have always refused it even a clinical separation from pemphigus. On the other hand, Besnier, Brocq, and most of the French School support Dühring in considering it quite distinct. Many French observers, especially Perrin and Leredde, consider that the toxin is a product which in health is eliminated by the urine, but in renal disease accumulates and acts on the nervous system, the skin, and the blood cells—hence eosinophilia. They cite its frequency in pregnant women as corroborative, as the interference with the renal function is so frequent in pregnancy; but that can equally well be cited as a proof of its being due to reflex nerve irritation or to a toxin from a non-renal source, such as the intestine. In favor of the latter I have seen several cases, and in two senile cases the probability of the intestine being the source of the toxin was very strong.

Leredde lays great stress on the abundance and constancy of eosinophile cells in the blood, in the vesicles and bullæ, the dermis and the epidermis, in this disease, and considers this a diagnostic feature, as in no other diseases except pemphigus vegetans and foliaceus are they found constantly in such abun-

dance. Hence he considers them all h matodermites.\* In leprosy they may be as abundant in some cases and not above normal in others.

Normally there are one or two eosinophile cells in a hundred white corpuscles, while in *D. herpetiformis* there are always eight to fifteen, and may be as many as forty per cent., but cases as low as four per cent. are recorded by several observers. The number present rises or falls with the exacerbations and remissions of the disease. There are some other less important changes also noted by Leredde in the blood. At the same time much more research is required before his deductions can be accepted unreservedly;† and, as already mentioned in the pathology of pemphigus, other observers dispute his claim that the abundance is diagnostic or even constant.

**Anatomy.**—Unna‡ has examined the lesions of a mild and a severe form, and although they appear to be very different at first sight, he says the histological basis is the same, viz.: "The edema and cellular infiltration corresponding to a vascular area of the skin, whose chief seat is the papillary body; the utterly passive behavior of the epithelium, which only presents edema and inter-epithelial blisters, or is completely elevated by serum; and finally, the complete absence of leukocytes."

**Diagnosis.**—The most distinctive features are the occurrence of severely itching, circinate, and papular erythematous lesions, with vesicles and bull , which have a tendency to group herpetiformly.

It is most likely to be mistaken for pemphigus, especially pemphigus pruriginosus, and bullous forms of urticaria and erythema exudativum. The extreme itching is sufficient to

\* "H matodermites," *La Presse M dicale*, December 28, 1898.

† *Examination for eosinophiles in the vesicles.*—1. The liquid may be examined directly under a cover-glass, when the eosinophiles may be easily recognized by the presence of large reflecting granules. 2. After fixing by alcohol-ether, stain by concentrated hematein of Meyer. Then immerse for a second in a one per cent. watery solution of Orange G.

*Examination of the blood.*—The blood should be evenly and thinly spread on a cover glass fixed by alcohol-ether, stained by strong hematein and then by the following solution: Alcoholic solution of eosine 1, water 70, spirit of 90  strength, 30. (From Hallopeau and Leredde's "Dermatologie," p. 719.

‡ "Histopathology," p. 144.

distinguish it from the ordinary forms of *pemphigus*, and in the case of *H. bulleux* the bullæ are of small size.

From *pemphigus pruriginosus* there may be some difficulty, but the mistake would not be of great practical importance. As a rule the bullæ are smaller in *hydroa*, but this is not reliable. In *pemphigus pruriginosus* there are no erythematous lesions at first, and when wheals subsequently form they are not symmetrical; the vesicles and bullæ tend to group in *hydroa*, not in *pemphigus pruriginosus*. The monomorphous character of the latter is the most reliable feature. If Leredde is correct, the presence of a high degree of eosinophilia would be decisively in favor of dermatitis herpetiformis.

In *urticaria bullosa* there would not be the symmetry in the lesions which is observable in the erythema of dermatitis herpetiformis nor yet the tendency to group and take circinate forms, but there would be itching pink lesions from which the bullæ would arise, but none independently of them, except sometimes on the palms and soles.

In *erythema bullosum* there is not severe itching, and there would be no bullæ or vesicles arising independently of the erythema.

The erythematous cases, in which there are no vesicles for a long time, would naturally be mistaken for erythema exudativum circinatum. The persistently recurring exacerbations, and the far greater itching than that of ordinary erythema, should excite suspicion until time and vesicles come to our assistance.

Hallopeau's form (*en cocardes*) must be very difficult to distinguish from herpes iris, in which such an arrangement is the rule. The eosinophilia test might be applied.

*Prognosis.*—Most cases, if judiciously treated, will get well in a few weeks to a few months, but the disease tends to recur in future years, the attacks becoming weaker and eventually ceasing, which is very much the course of ordinary pemphigus. On the other hand, some cases go on for many years, the patient never being quite free, or having only short intervals of freedom. Severe cases in the aged are apt to terminate fatally; while the mortality at all ages is only about five per cent.

*Treatment.*—Place the patient in as favorable a position as his circumstances will admit of, so as to avoid overwork,

whether of body or mind, or exposure to worrying conditions. The state of the digestive organs must be inquired into, and if necessary treated; a highly nutritious and easily digestible diet ordered, alcohol restricted, and sometimes avoided altogether; change to a fresh bracing air, if possible, should be arranged, and tonics given suited to the patient. While these general measures should be carried out as far as practicable, they really only pave the way for specific medicines, such as arsenic, salicin, and phenacetin, and in some cases quinine and belladonna. Arsenic, in this as in most recurrent bullous eruptions, has long had the leading rôle, but it is powerless as a rule until 8 or 10 minim doses of the liquor arsenicalis, or, in some cases, the limit of the patient's tolerance of the drug has been reached. Then in favorable cases the bullæ cease to develop in such numbers, or there are longer intervals, and ultimately the eruption ceases altogether. This is usually attained in a month or six weeks, but it may require a longer course. Cacodylate of soda would probably act in a similar manner, but the risks attending its use are pointed out in the article on Psoriasis. Of late years arsenic has, in my practice, been largely superseded by salicin. It is given in the same kind of case, and has so often succeeded, even where arsenic has failed, that I now generally start with it. Beginning with 15 grains of salicin three times a day, the dose may be increased rapidly up to 25 or 30 grains, and if the bowels are kept open there is rarely headache or other disagreeable symptoms. It is soluble to the extent of 19 grains to the ounce. As in pemphigus, both these drugs in some cases control the eruption without altogether preventing it, and in others fail completely.

Tilbury Fox preferred quinine in large doses, 2 to 10 grains; and I, also, have found it efficacious in some cases, given with an effervescing citrate of potash mixture. Cod-liver oil is generally desirable.

Phenacetin is sometimes very successful, especially in cases where the burning and itching are very intense and tend to wear out the patient. It may be given in 5- to 10-grain doses three times a day, or as a supplement to arsenic or salicin 10 grains at night, when it helps to secure rest. Morris strongly advocates this drug. Antipyrin acts in a similar way.

When the other drugs have failed belladonna has sometimes

succeeded; it, also, must be given in full doses, beginning with 15 minims and increasing up to 30 minims, or more, of the tincture three times a day. Should there be distinct evidence of the gouty diathesis, alkalies, colchicum, and diuretics, especially acetate of potash, would be appropriate, but iodid of potassium must never be given, as it is liable to produce serious aggravation of the eruption.

*Locally.*—Duhring found that sulphur ointment gave great relief in some cases. Where practicable, sulphid of potassium baths, from ℥ss to ℥ij to the 30-gallon bath, might be tried, and Harrogate, Strathpeffer, or Aix-la-Chapelle would be indicated among the spas.

Another form of using sulphur baths is that of nascent sulphur, by means of the sulphaqua powder dissolved in the water, or by dissolving ℥j to ℥ij of hyposulphite of soda in one jug, and ℥ss to ℥j of tartaric acid in another, mixing them together and then adding them to the bath. Where the bullæ are large and have ruptured and the eruption is extensive, these sulphur remedies might be too powerful to use; then alkaline and bran baths, with or without liq. carbonis detergens, frequently give great relief, and if taken at bedtime will promote sleep, which is usually otherwise much disturbed. Dusting powders of starch and zinc, and sometimes of kaolin and a small quantity of creasote, are useful. In other cases lotions are preferable; those of calamin and lactate of lead are good, but generally the liquor carbonis detergens ℥ij to ℥viii, or other anti-pruritic agents (Lotions, F. 20 to 38), are the most reliable, and by obviating the necessity of scratching, materially facilitate the return to health. Boric acid ointment would probably be the best application to raw surfaces. It must be remembered that some cases improve when they are kept in bed at one temperature.





PERMANENT SCARRING FROM HYDROA ÆSTIVALIS.

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## HYDROA VACCINIFORMIS SEU ÆSTIVALIS.\*

*Synonym.*—Recurrent summer eruption (Hutchinson); Hydroa puerorum (Unna).

*Definition.*—A recurring summer eruption of childhood, usually with vesicles, which leave scars.

Bazin was the first to describe this disease in 1862; but owing to its variety and rarity, and his description applying to one phase of it, it has only recently been identified. Hutchinson made his description independently, in 1888. Since then cases have been reported by numerous observers in Europe and America, both North and South (Bahia), so that it is practically ubiquitous, though still a rare disease, as less than thirty cases have been published.

Bazin's description, from a single case, though he subsequently saw others, is as follows: "It appears after exposure to much wind or to the sun. There may be slight malaise or anorexia, and then the eruption comes out on the uncovered regions, such as the nose, cheeks, wrists, hands, and then other parts, including sometimes the mucosa of the mouth. Red spots first appear, on which rounded vesicles, like those of herpes, spring up. On the second day distinct umbilication is produced; then the contents become opaque, and resemble a smallpox or a vaccine pustule; each dries up into a crust from the center toward the circumference, and when the crust falls off leaves a depressed cicatrix; these scars, when numerous,

\* Illustrated. Author's Atlas, Plate XXII., Figs. 2 and 3. Hutchinson's smaller Atlas, Plates CVIII. and CX. Extreme cases, both females.

*Literature.*—Bazin, *loc. cit.* Hutchinson, *Clin. Soc. Trans.*, vol. xxii. (1889), p. 80, with chromolithograph. Jamieson, "Diseases of the Skin," 3d ed., p. 172—these cases were originally reported as xeroderma pigmentosa. *Lancet*, vol. ii. (1888), p. 33. Unna, *Monatshefte für prakt. Derm.*, August, 1889, p. 108. Handford, *Illustrated Med. News*, vol. 1889, with good colored illustration of phase Bazin described. *Brit. Jour. Derm.*, vol. iv. (1892), p. 128,—a good abstract of Buri's case, with comments by Brooke. C. Boeck, *Archiv f. Derm.*, vol. xxvi. (1894), p. 23 (four cases). J. T. Bowen, *Jour. Cut. and Gen.-Ur. Dis.*, vol. xii. (1894), p. 89, with histology. L. Brocq, *Annales de Derm.*, 3d. ser. vol. v. (1894), p. 1133. Mibelli has also published a case with histology, *Monatsh. für Derm.*, vol. xxiv. (1897), p. 87.

give the aspect of antecedent smallpox. When the sero-pus is abundant the crusts are thick and yellow, like impetigo. Successive crops prolong the eruption for months, and recurrences from change of temperature are frequent. Arthritic symptoms often precede the eruption."

*General Description.*—The disease generally begins in the first, second, or third year of life, though it may be later. The eruption develops chiefly on the uncovered parts, and is generally preceded by burning or pain, fullness, but not itching, of the region attacked, and by some general discomfort, anorexia, sleeplessness, etc. Then the red spots appear, and on these, rounded vesicles develop singly or in groups like herpes. These vary in size from a millet seed to a large pea if discrete, or they may coalesce into an irregularly outlined, flattish bulla; the redness remains as an areola. These lesions may follow three courses: the vesicles may dry up in a day or two, leaving a thin scab; or they may rupture and leave a yellowish crust; or the larger vesicles sink down, and dry in the center into a thin red scab, surrounded by a ring of fluid, and may enlarge slightly in this form, and closely resemble a vaccination vesicle, having even dissepiments, so that a single prick does not empty it. It is to this phase that Bazin's name applies. In either case, ~~after~~ the scab has separated a ~~reddened~~, slightly depressed scar is left, which eventually gets white, but is indelible, so that the patient looks as if he had had smallpox. Occasionally the lesion is arrested at the erythematous stage, and then scarring may be avoided, but it is generally a very marked feature. The individual lesions develop and decline in three or four days, but the time of the falling off of the scab is variable according to its depth. The whole attack lasts from two to three weeks, as all the groups do not develop simultaneously, and all phases may sometimes be seen together. Itching is never a prominent feature. The favorite regions are the face, especially the cheeks and nose; the ears, which are so severely involved as to be often reduced to mere cicatrized gristle; the neck, especially at the sides; the back of the hands; and less frequently the extensor aspect of the arms and forearms, and even the legs. Other regions are occasionally involved, and it has been pretty general, but with only a sparse distribution of the diseased foci. The patient is liable to recurrence, from spring to autumn in-

clusively, few attacks occurring after October and before February. The worst are in the hot months, the sun being a powerful developing factor, and the wind almost as irritating, the eruption often breaking out a few hours after exposure. The attacks get milder at puberty, and generally cease by the time the patient is grown up.

*Variations.*—While the above is the type there are many departures from it. In a lady of twenty-two sent to me by Dr. Blake of West Wickham, the disease began in April, at the age of thirteen, and subsequent attacks in the summer and spring. In four of the attacks the lesions suppurated, and foveated scars were abundant all over the face except round the mouth and chin. The nose and ears were much disfigured by the scarring, the hands were red, swollen, and scabbed, as if from broken chilblains, which they resembled closely in the winter. The knees and elbows were involved during a winter at St. Moritz. The eruption was worse at the periods. White of Boston \* reports two winter cases, but they were not quite typical. Eosinophilia eight to fifteen per cent. was present. Colcott Fox's † case of vesicular recurring winter eruption is analogous. McCall Anderson ‡ had two male cases with a pigment allied to uro-hemato-porphyrin in the urine. In another case of Fox's, a girl of nine, in whom the eruption had recurred every spring and summer from birth, clear vesicles which left scars like those of variola were localized to the face, ears, upper part of the neck, and when at its worst the hands also.

*Etiology.*—The earlier cases were all boys, but fuller experience has shown that sex has no influence. Most have commenced in early childhood, generally under three years, but there are a good many exceptions, and it appears that several of the female cases have had a late commencement. Boeck's case began at twenty-six, Van Dort's at eighteen, and both Jamieson's case and one of mine began at thirteen.

Nearly all have their attacks worst and most exclusively in the summer, but a few, like my case, have been worse in the cold weather; not only sun, but artificial heat and cold winds

\* *Amer. Jour. Cut. and Urin. Dis.*, vol. xvi., 1898, November.

† *Brit. Jour. Derm.*, vol. x. (1898), p. 410.

‡ *Ibid.*, p. 1.

are efficient excitants, and in one of Unna's cases, cold and sea-baths would produce an attack. Three brothers of one of Unna's cases were said to have suffered in the same way, but it must be admitted that Unna's cases differ somewhat from the others in several respects, one important difference being that the vesicles and bullæ were quite superficial and left no scar, and often the lesions stopped short at an early stage, or remained as papules.

*Pathology.*—This is unknown; it is presumably a vaso-motor neurosis, and a congenital susceptibility to external irritation may be assumed, but this does not take us very far. That it is not merely the chemical action of the sun's rays analogous to Röntgen-ray burns is shown by the fact that other agents will produce it.

*Diagnosis.*—The most striking features are the onset in early life, and the annual recurrences in the warm season of the year, especially after exposure to the sun and wind. The lesions occur symmetrically on the exposed parts, are vesicular in type, single or herpetiform in distribution, with a tendency in the large ones to dry from the center towards the periphery, and for all to leave indelible scars. There are only a few scar-leaving eruptions which could give rise to error, viz., strumous disease of the skin, lupus vulgaris, lupus erythematosus, and syphilis. The symmetry of the scarring would at once show that it was not strumous or lupus vulgaris, and while this would not be true of lupus erythematosus, in which, too, the ears are often involved, that disease rarely occurs in childhood, is generally worse in the winter, never has perfectly free intervals, and of course never develops with vesicles after exposure to the sun or wind. Hutchinson and Jamieson see a resemblance to xerodermia pigmentosa. The points of resemblance are the onset before three years old, the malign influence of the sun, and the distribution on uncovered parts; the last point of resemblance is more apparent than real, as the distribution of xerodermia pigmentosa is very exact, accords with that of many other diseases, and extends beyond the area of exposure and corresponds with a vascular area governed by certain vaso-motor centers, while in hydroa vacciniformis the area of disease rarely extends beyond the parts exposed; other differences are:

## HYDROA VACCINIFORMIS.

## XERODERMIA PIGMENTOSA.

Course intermittent.

Slowly progressive.

Tends to improvement and spontaneous cure.

No tendency to improvement, but to malignant growths and death.

Lesions are vesicular and leave scars from inflammatory destruction.

Lesions are pigment spots, flat warts, atrophic scarring, telangiectases and new growths.

Lesions are excited by sun and other atmospheric influences.

The sun has no special influence after the first freckle-like outbreak, and even then there is no proof that it is due to the sun.

Pustular syphilids in the secondary stage might easily be mistaken for it, but pustular eruptions only occur in severe forms of syphilis, would not be limited to the exposed parts of the body, and other signs of syphilis, past or present, would certainly be present in such a case; then the history and date of onset of the two diseases would be quite different, and there would be no annual summer recurrences. If cases like those of Unna's, in which there was no scarring and the eruption was not limited to exposed parts, are to be reckoned in the same category, the points to be relied on would be: early commencement, annual summer recurrences, especially after sun exposure throughout childhood, the rash consisting of slight pustular erythema and non-suppurating bullæ or vesicles, painful but not pruritic, with slight nervous and digestive disturbances, such as anorexia and sleeplessness, gradual spontaneous tendency to amelioration at puberty, and cure at or before twenty-five years old.

*Prognosis.*—This is unsatisfactory. All that can be promised are intervals of freedom in the cold weather, with lessened severity at puberty, and, with a few exceptions, cure at adult age.

*Treatment.*—The prophylactic treatment is obviously to guard the patient from exposure to the sun, and even artificial heat on the one hand, and against cold or boisterous winds on the other. All irritant applications to the skin should also be

avoided. Internally, as in other recurrent bullous eruptions, arsenic should certainly be tried, and in one of my cases salicin 15 grains three times a day had a marked controlling effect. If these fail, quinine or belladonna, or the two combined, are worthy of trial. When the eruption is out I should puncture each vesicle as early as possible, and apply iodoform powder, or paint on a solution of it in ether, and thus hope to avoid subsequent scars. Unna's second case derived benefit from ichthyol soap.

After rupture of the vesicles or bullæ the crusts should be softened in carbolized oil 1 in 40, and the exposed surface dressed with acidi borici gr. 20, iodoformi gr. 5, creolini ℥v, adip. benz. ʒj, ft. ung. Zinc and ichthyol and zinc and resorcin pastes are recommended by Buri and Brooke. Applications to cut off the actinic rays, such as tannate of silica, watery solution of bisulphate of quinine, with glycerin and curcuma, have been tried by Unna without success.

### DERMATITIS RECURRENS (A) ÆSTIVALIS AND (B) HIEMALIS.

These eruptions are etiologically allied to *Hydroa æstivalis*, but are morphologically different.

There appears, however, to be no essential difference in many of the cases whether they come out in summer or winter. Hutchinson first described **Recurring Summer Eruptions** under the name of Summer Prurigo,\* which now he himself admits is inappropriate, as the itching is not the most prominent symptom in all cases, but there is a group to which that title is sufficiently suitable.

The eruption begins in infancy or childhood, seldom after puberty, and recurs until adult life; nearly all cases get well between twenty and thirty. In most cases the recurrences are chiefly in the summer, the patient being free, or almost free, in the winter; in a few cases of a similar morphology the reverse is the case. In the one set the sun's rays are the chief exciting

\*Sydenham Society's Atlas, Plate XXXVIII., and clinical lecture on "Summer Prurigo." Hutchinson's "Rare Diseases of the Skin," p. 126. *Clin. Soc. Trans.*, vol. xxii. (1889), p. 82. "A Clinical Study of some Winter and Summer Recurring Eruptions," by H. Radcliffe Crocker, *Brit. Jour. Derm.*, vol. xii. (1900), p. 39.

factor, even sometimes without direct exposure, while cold winds also produce the eruption, but in a minor degree. In the other set the cold of winter is the main cause, but direct sun exposure has also a bad influence. Thus the most sensitive subjects are scarcely ever free for long together.

In most instances the eruption is confined to the face, neck, and upper extremities, and is always most developed there; but in the most strongly marked cases it affects the whole body surface, except the palms, soles, scalp, and flexures. It tends to improve when the patient reaches puberty, unless it has begun later than usual, and some of the cases have got quite well when adult life was reached.

In the majority of cases the eruption is papulo-vesicular, but some are vesiculo-pustular and others papulo-erythematous. In the commoner class of cases the eruption consists of pale red conical papules, and in the center of some are minute collections of clear fluid resembling an abortive acne. They do not, however, tend to become pustules, but generally leave behind minute shallow scars. Slight edema of the affected limbs may occur at the height of the attack. The papules itch moderately at night, and the scratching may slightly modify the eruption, producing a small amount of scabbing at the apex of the papule. When the disease is of long standing the scars of successive attacks may produce a general mottled appearance of the surface. In two sisters under my care for six years one began at the age of seven, the other when nineteen. The eldest got well when she was twenty-six; the younger was much better at the age of twenty-one. In neither was there any scarring, but the itching was sometimes rather severe.

In other cases the papules are broader and flatter and the vesicles larger, from a millet seed to a hemp seed. In others, again, the lesion is nearly all vesicular except a narrow areola, while sometimes the vesicles may become pustules. Again, the vesicular element may be suppressed and only erythematous papules, conical or obtuse, be present. Diffuse erythema and diffuse urticaria has recurred in a similar way. Cases showing other variations are described in my paper, and also pustular and erythematous eruptions evidently belonging to the same category, but coming out in cold weather and being in abeyance during the summer.

In the **summer prurigo** type, in the great majority of cases, the eruption is on the face, where it is worst, the upper part of the neck, the ears, and slightly on the back of the hands and forearms. It consists of convex papules, pale red, an eighth of an inch across, and from scratching they often have a small scab at the apex. (In several cases under my care it has begun at nine or ten years old.) The itching is often severe in the summer, but the eruption does not itch much in winter, and the scabbing is then absent and the papules paler and less prominent. Although closely crowded together, they are almost always discrete, and except for position, remarkably like true prurigo.

*Etiology.*—This is obscure. Both sexes are liable to it, and the disease is one of infancy or childhood. One case followed measles; one followed shortly after menstruation (æ. eight years). In two of my cases digestive disturbances would sometimes determine an attack as well as sun and wind. In another, a boy, the eruption began soon after a dog-bite on the end of the nose. Two of them began in adult life. In one, a farmer, it commenced when he was twenty, and it had lasted fourteen years when I saw him; the eruption began with itching and was followed by blisters. In another, a lady, it began at twenty-four, and was determined by exposure to sun and wind. The eruption came out as a small blister with great irritation, and dried up, but the spot lasted six weeks.

*Pathology.*—All these eruptions appear to be of angio-neurotic origin, and a large proportion of the cases show a congenital predisposition or vulnerability. The variation in the morphology depends on the idiosyncrasy of the patient.

*Diagnosis.*—The disease resembles hydroa æstivalis in being a disease of early life which recurs every summer, and tends to improve as the patient grows up. The limitation of the eruption to the exposed regions is less absolute, and the subsequent scarring is very slight in comparison, while itching is more marked. The eruption is more variable in its characters, and vesiculation, if present, is on a much smaller scale, a pin's head to a hemp seed being the usual range. There is no tendency to group. The summer prurigo cases differ from true prurigo in not commencing until about nine or ten, in their localization,

and being worse on the face where prurigo is least developed, and in being always aggravated in the summer.

*Treatment.*—Most of Hutchinson's cases improved under arsenic, though some required doses of six or seven minims. Locally, a lead and mercury ointment was successful in giving relief. Two of my cases improved most by attention to the digestive organs, regulating the bowels with alkaline or acid stomachic mixtures as required. The elder had small doses of arseniate of soda at the last, added to the alkaline laxative, with benefit. In the younger and more obstinate case combating the chronic constipation was the chief element of success. Several of the other cases had disordered digestion, but where this is absent arsenic should be tried. Salicin in one of my cases had a controlling, but not a curative, effect. In the summer prurigo type a solution of protargol, five grains to the ounce, painted on two or three times a day, gave most relief to the itching, and therefore prevented scratching and its aggravations; greasy applications always increased the itching in my cases. Ichthyol internally seemed to do some good.

**B. Dermatitis hiemalis** was first described by Duhring, but Corlett \* has written a good paper on it, and described it as follows: "The eruption is characterized by variously-sized round, or as involution proceeds horseshoe-shaped patches, which are slightly, sometimes markedly, thickened, having an abrupt, well-defined margin, and a dusky red or slightly erythematous color. At first vesicles are present, which easily rupture, leaving denuded, weeping, irregular pin's-head to lentil-sized surfaces, whose color is perceptibly stronger than the surrounding patch, and may be likened to a raw ham tint. The disease at this time often presents a striking resemblance to herpes. Later the patch takes on a faded rose-colored hue, and becomes covered with a thin layer of adherent scales, when it might easily be mistaken for lupus erythematosus, but it does not spread at the periphery. This may mark the subsidence of an annual attack, or after many years the eruption may assume this form. The distribution is on the back of the

\* "Cold as an Etiological Factor in Diseases of the Skin," by W. Corlett. *Jour. of Cut. and Gen.-Ur. Dis.*, vol. xii. (1894), p. 458. Colored plate. Also *Trans. Third Inter. Cong.*, 1896, p. 622.

hands, occasionally of the feet also." I have only seen one case which at all corresponds to this description, but the winters in America are much more severe than here. Nothing except protection from exposure to cold appears to be of any avail.

**Acrodermatitis pustulosa hiemalis** is the name I have tentatively given to a disease of which I have seen three instances, and which presents several resemblances to Barthélémy's folliclis.

The lesions are all excited or kept up by cold, affect the hands only, especially about the knuckles and sides of the fingers, and take the form of indolent indurated papulo-pustules, isolated, and few in number at a time; but the disease as a whole persists by a succession of lesions throughout the winter and early spring.

They begin as hard, brown, large pin's-head points, but later as if there was a "thorn in the flesh"; if pricked early, watery fluid issues, but later matter forms round the peg, and the whole is on a red raised base the size of a large pea. The central portion comes away and leaves a hole which heals very slowly and leaves a scar. A few form indurated red nodules without suppuration. These cases resemble folliclis in the character of the individual lesions, in a slight tendency to group, and in leaving punched-out pigmented scars. In one of my cases there was evidence of tuberculosis, which has been present in several cases of folliclis. The differences are their limitation to the fingers, their association with a feeble circulation, and being excited by cold weather.

In folliclis the lesions are in large numbers, chiefly on the limbs, especially at the joints, and while they attack the hands, the palms and backs are largely affected as well as the fingers. Still, as the lesions appear to be identical, it may be only a winter variant of folliclis. C. W. Allen\* of New York records a case of somewhat similar characters. It attacked the hands and feet, including the palms and soles, but did not extend above the ankles and wrists. The lesions began as erythematous spots, which soon became nodular, and in a few weeks or months they underwent a central necrosis and left a depressed

\**Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. xvi. (1898), p. 227.

cicatrix. There was evidence in the man of gout, but not of phthisis.

In December, 1891, Cavafy \* showed a case at the Dermatological Society of a young woman, æt. twenty-one, with the "chilblain circulation," but who seldom had chilblains, but every winter for several years was subject to an eruption on the fingers of indolent inflammatory lesions, slightly vesicular at first, but which were a little later convex, split-pea-sized, red papules with a solid horny plug in the center, giving them a somewhat warty appearance; they had no vascular points in the center, and went away entirely in the summer. This is evidently the same affection as that just described.

The administration of nitro-glycerin tabloids and rubbing in unguentum iodi produced improvement in two of my cases, and one seemed to be cured by taking thiol gr. v. in pill three times a day for a considerable time. Vasogen iodin would probably be an improvement on unguentum iodi.

### IMPETIGO HERPETIFORMIS (Hebra).

*Definition.*—An inflammatory disease, characterized by the formation of groups of small pustules, attended with severe constitutional symptoms.

No case of this disease, that I am aware of, has been recorded in England, and most of the American cases are regarded as pustular forms of dermatitis herpetiformis.

Heitzmann's and Fordyce's are possibly true examples of this rare and formidable disease, but their identity is by no means unchallengeable; at the same time, with such a rare disease we are apt at first to form too narrow a conception of its clinical possibilities, which often have to be widened as experience grows.

Whitehouse's † case, in a male æt. thirty-nine, appears to have been of the classical type.

It is mainly to Hebra ‡ and Kaposi that we are indebted for

\* Published in full in *Brit. Jour. Derm.*, vol. iv. (1892), p. 1.

† H. H. Whitehouse of New York. *Amer. Jour. Cut. and Gen.-Urin. Dis.*, vol. xvi., April, 1898.

‡ Hebra's Atlas, Lief. ix., Plates IX. and X. Reproduced in Kaposi's Hand Atlas, Plates CXXVII. and CXXVIII., additionally illustrated in Plates CXXIX. to CXXXIII.; CXXXII. was in a male.

what we know of this disease, and from their account, founded on five cases, and from a monograph by Kaposi,\* the following description is taken.

*Symptoms.*—The eruption consists of pin's-head-sized, superficial pustules, sometimes isolated, but generally densely crowded into groups half an inch across, often circular in shape, the central pustules of which dry up after a time, while fresh ones are formed at the periphery; by this means, and by coalescence with neighboring groups, large areas are implicated. The contents are pustular from the commencement, at first only opaque, but later greenish-yellow, until they dry up into dirty-brown crusts, which enlarge by the accretion of other pustules at the periphery. The commencement of the eruption is on the inner side of the thighs and groins, round the navel, on the breasts, in the axillæ, and the oral mucous membrane, where it may even precede the skin eruptions. As fresh groups and isolated pustules are continually developing in crops, the whole body surface may be involved in three or four months; the skin is then hot and swollen, with crusted, fissured, and excoriated patches, here and there still bordered by pustules; and even on the tongue, in one case, were circumscribed gray plaques depressed in the center.

Rigors and high fever precede the onset of the eruption and of each outbreak, which are immediately followed by a fall of temperature, so that the general symptoms are those of a remittent fever, with dry tongue, intercurrent rigors, loose bowels, high-colored urine, with increased urea, but no albumin until late in the disease. It has ended fatally in all the female but one, of Kaposi's cases, and in this there were many relapses, while two recovered after several attacks, but succumbed to a later one. Schultze's and some others of the milder type have also recovered. In nineteen cases the victims were pregnant women, and delivery had no influence for good or evil on the course of the disease. In some cases endometritis and peritonitis were found post mortem; the others afforded no expla-

\* "Impetigo Herpetiformis," Kaposi, *Viertelj. f. Derm. u. Syph.*, vol. xiv. (1887), p. 273; highly illustrated with colored plates. See also "De l'Impétigo Herpétiforme," Dubreuilh, *Ann. de Derm.*, vol. iii. (1892), p. 353, who reports another fatal case in a male æt. fifty-three, and gives a general review and list of cases—seventeen in all. About a dozen cases have been added to this number.

nation of the cause of death. The twelfth case, under Kaposi, was a young man. The disease began apparently as a severe intertrigo, with great general disturbance; it spread over the abdomen, and smaller patches came elsewhere; he gradually sank, and post mortem there was general peritonitis, with effusion.

Dubreuilh's, Whitehouse's, Tommasoli's, Pollock's and Rille's, and Gunsett's cases were also men; Gunsett's case recovered. Whitehouse's case and Breier's cases were preceded by what appeared to be only severe eczema, and Rille's, a lad of seventeen, by an iodoform dermatitis. This rather favors Hallopeau's view that there is a purulent infection of the skin. Gunsett's case,\* from Wolff's clinic, was a man æt. thirty-three. The disease began suddenly with rigors and fever, the eruption began on the face, then attacked the mouth and pharynx, and then the groins; thence it spread all over the body except the scalp. Under the administration of quinine he recovered in about two months from the onset.

All the cases of Kaposi's type are singularly alike in the development and appearance of the eruption, except that in a few the pustules have been a little larger than he described. In several they have reached the size of a lentil.

If cases such as Heitzmann's and Fordyce's are to be brought into the same category, then a somewhat wider symptomatology will have to be adopted.

The pathology is doubtful. Probably it is a disease of septic origin, though this has been actually demonstrated in only about one-third of the cases, and Auspitz has called it **Herpes pyæmicus**. Neumann considered it to be a metastatic pustulosis. Duhring at one time regarded it as a phase of dermatitis herpetiformis, but has modified his views somewhat since the publication of Kaposi's paper, and acknowledges that even Heitzmann's case does not correspond with Kaposi's descriptions.

Unless Kaposi has given too narrow a conception of the dis-

\*Gunsett, *Archiv f. Derm. u. Syph.*, vol. lv. (1901), p. 337. Abs. *Brit. Jour. Derm.*, vol. xiii. (1901), p. 402. He gives references to all the above-mentioned cases and others, 28 in all, but some are not genuine cases. Out of the 28, 19 were puerperal women, 1 was not pregnant, 8 were men. Some of the male cases recovered.

ease, the diagnosis would not offer much difficulty; successive crops of small pustules in spreading groups, with severe rigors and fever, especially if in a pregnant woman, would be sufficient to characterize it. It resembles dermatitis herpetiformis in the groups, the tendency to form circles and to spread peripherally, but differs from it in the lesions being very small and pustular from the beginning, which is very exceptional in dermatitis herpetiformis,\* in the absence of erythema and of severe pruritus, and in the presence of severe general symptoms, with a fatal result in nearly all cases. In the last particulars, in the positions most involved, and in the affection of the oral mucous membrane sometimes preceding the skin lesions, it recalls pemphigus vegetans. It should be compared with Hallopeau's cases of pyodermites végétantes, with very similar eruption, but mild course.

*Treatment.*—None has been successful hitherto; continuous baths, where practicable, would give relief and lower the temperature. Antiphlogistic treatment has been tried in vain. I should be inclined to treat it as pyemic, and give five to ten grains of hydrochlorate of quinine every four hours, and a highly supporting dietary, with alcohol in some cases.

### PSORIASIS.†

*Deriv.*—*ψώρα*, the itch.

*Synonyms.*—*Lepra*; *Lepra alphos*; *Alphos*; *Psora*; *Fr.*, *Psoriasis*; *Ger.*, *Schuppenflechte*; *Psoriasis*.

*Definition.*—A chronic inflammatory disease, characterized by dry, red, primarily roundish patches, covered with imbricated, silvery, adherent scales, occurring chiefly on the extensor surfaces.

\* Maret, in his "Inaugural Thesis of Strasburg," 1887, and Du Mesnil and Marx, *Archiv für Derm. und Syph.*, vol. xxi. (1889), p. 657, and in vol. xxiii. (1891), p. 723, publish cases as impetigo herpetiformis, with relapses, but favorable course. If their view is correct Dühring's contention would be established, but further evidence is required before a decision can be arrived at.

† *Literature.*—Author's Atlas, Plates XXIII. to XXVIII., illustrating the chief varieties, and Plate XC., Figs 2, 5, 6, 7, as it affects the nails. Syden. Soc., Plate XIV., which shows a high degree of crusting, and Plate XVII., as it affects the palm and nails, are especially good.

Psoriasis is in most cases easily recognizable, and one of the most common diseases of the skin. It is the fourth in frequency in private,\* and the fourth in hospital practice, and forms about seven per cent. of all cases in this country, but in Vienna and in America it appears to be less common than in England and France, viz., two and three and one-half per cent. respectively.

There is only one kind of true psoriasis, but many qualifying terms have been given to the variations in its clinical aspect, founded chiefly on the stage of development, its localization, and the acute or chronic character of the inflammatory process, and occasionally on some complication or exaggerated feature.

*Symptoms.*—A typical case has well-marked characters. Symmetrical in the main, it selects, in the vast majority of cases, the extensor surface of the limbs, especially the tips of the elbows and knees, and next in frequency the scalp and trunk. It consists of patches of very variable size, round or oval when small, but irregular when large; they possess sharply defined borders, so that they stand out prominently from the healthy skin, and are covered more or less completely by imbricated silvery or grayish-white, scaly, adherent crusts, placed upon slightly raised plateaux of a bright red color at first, but, in cases of long standing of a duller hue. This is best seen when the scales are picked off, which exposes to view a number of bright red dots, which bleed easily, and are the apices of the hyperemic papillæ. A lens is often necessary to see these red points, and the scales must be completely removed.

The eruption is dry from the commencement, itches more or less, according to its development and the activity of the hyperemia. But the irritation is usually much less than in eczema, and there is no pain unless the eruption is over the joints and the movements produce fissuring. In the majority of young cases the patients appear to be in good health, often with bright, clear, ruddy complexions, justifying Hebra's dictum, that "psoriasis is a disease of the healthy," but, like most aphorisms, this must not be taken too literally, and especially if the first attack occurs after thirty.

\* In my private practice it is six per cent. and in McCall Anderson's ten. Bulkley gives four and five per cent. for his public and private practice respectively in New York.

**Primary Plaque.**—In a considerable proportion of cases, if the mode of development of the first attack is investigated, it will be found that the disease commenced in one or two patches close together, which slowly enlarged and coalesced into a plaque, which remained single for weeks, months, or even years before multiplication took place. This may occur in two ways, either slowly, the patches coming out singly and unsymmetrically and usually not far from the original patch, or more rapidly and then symmetrically in distant points, such as the elbows and knees, or with generalization. This mode of development is like that of pityriasis rosea, but is not observed in recurrences, which may be widespread and symmetrical from the first. Once established, the course is chronic, varying, when untreated, from months to years; but there are nearly always remissions or intermissions. If removed entirely, its recurrence is only a question of time, some patients having one or two attacks a year, while others go free for much longer intervals and a very few cease to recur at all. The eruption leaves only a transitory redness, or slight pigmentation, unless the patch has been very chronic, is below the knee, or has been treated with arsenic, which often produces dark staining on the site of the patches.

**Variations.**—According to the intensity of the disease, the size, shape, and stage of the patches, and the amount of scales upon them, etc., the earlier writers made varieties and christened them with different names. These, perhaps, are of some slight use to the specialist to express briefly the aspect of the case, but are useless lumber to the student, and are only explained here as they are still used by some writers.

Psoriasis commences as a small pin's-head-sized flat papule, which speedily becomes capped with white scales (**P. punctata**). The papule enlarges at the margin, and when about a quarter of an inch across looks "like drops of mortar on the skin" (**P. guttata**); continuing to enlarge, discoid patches of various sizes up to about two inches are formed (**P. nummularis**, **discoidea**). The coalescence of several patches from different centers produces large, irregular patches, or even sheets of eruption, covering the greater part of the limb or trunk (**P. diffusa**), and when all over the body **P. universalis**.\*

\* It is probably never absolutely universal, but Hebra seemed to think





PSORIASIS GYRATA.

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The disease may stop for some time, or never go beyond any one of the stages above mentioned.

Involution of the disease always commences in the center; thus in a round patch a ring is produced (*P. circinata*); when it happens in a compound patch, gyrate lines are formed (*P. gyrata*).\* As the healing process progresses, the ring gets narrower, then broken, and, finally, the broken parts disappear. In this case, then, it is an indication of involution, but it may occur also in evolution upon the trunk, and form rings and festoons from the first, apparently following the normal arrangement of the hair follicles; the component papules, which begin at the follicles, coalesce into rings, and these rings meeting, break at the place of contact and form festoons. In this form the disease spreads at the margin as in the patches, but involution goes on *pari passu*, and so the rings enlarge; but the strip of disease is not widened. When a healthy process sets in the evolution stops, the ring gets broken, and the whole gradually disappears. This ringed mode of development, which is rarely seen on the limbs, was called *Lepra* by Willan, a term now restricted to leprosy.

A few other names remain to be explained. Very obstinate cases, where the skin is much thickened and fissured, with large adherent scales, are *P. inveterata*; where the scales adhere so as to form much-raised, conical heaps, *P. rupioides*;† where there is a little pus underneath the crusts, a rare event, *P. empyodes*.‡

that such a condition exists. In Kaposi's Hand Atlas a case with this designation had small areas of normal skin. I have never seen a case without some intervals of healthy skin, though I have, of course, seen many cases which have passed into pityriasis rubra.

\* Plate XXVII. of my Atlas illustrates an evolution eruption, and Plate XXIV. of the St. Louis Atlas an involution case of very similar aspect.

In a case recorded by Gassmann the patient had numerous circles and gyri of very small size, forming an arabesque pattern. He quotes Jadassohn, his chief, as having had three similar cases.

† I have met with an extreme instance in a child of five, in which the limpet-shell resemblance was exact in silvery adherent scales. It was not more difficult to cure than the usual form. In a case reported by Gassmann with rupioid eruption on the trunk, on the scalp the crusts formed veritable horns. An extreme case was seen by Kaposi with verrucose tumors on the palms and soles, and the scalp was almost bald with tumors.—*Annales de Derm. et de Syph.*, vol. iv. (1893). p. 109.

‡ A case of Hallopeau's simulated bullæ in some of the lesions.

In *P. acuta* there are bright red patches, less defined at the margin than usual, or there may be large areas; the scales are thin and papery, being thrown off so rapidly that they have no time to aggregate into masses. The part is hot and tender, itches severely, and very little irritation will produce discharge constituting the *P. eczémateux* of Devergie, which is seen mainly on the forearms and legs. *P. acuta* sometimes goes on to pityriasis rubra.

It must be borne in mind that the usual appearances may be modified from various causes. Thus, there may be hardly any scales, owing to previous treatment, of which the patient often makes no mention until questioned. In chronic alcoholics the patches often assume a deep purplish-red color and the scales shell off easily; or, owing to the presence of unusual irritability, the patches may be scratched into an ecthymatous condition. In a case of mine with rheumatoid arthritis the crusts assumed a horny character. The disease may be arrested at almost any of the developing stages, *c. g.*, the eruption may be punctate or guttate throughout its whole course, even when the disease is otherwise so severe that every region is involved.

*Position on the body* also modifies the disease. When on the *scalp* it only leads to loss of hair when it is more than usually acute; as a rule, it interferes remarkably little with the growth of the hair, and the scalp may be patchily scurfy, while on the borders of the hair it is often such a bright red as to be mistaken for eczema; but the abrupt termination of the diseased area, and the absence of discharge, should lead to the right conclusion. When on the *scrotum* the skin is often fissured with much swelling, redness, induration, and thin secretion; there are tenderness, pain, and irritation.

On the *palms* and *soles* it is rare, and almost invariably associated with manifestations elsewhere; when it does occur there, raised patches with scaly crusts are seldom formed, but the horny layer is thickened in small areas, and by splitting produces whitish worm-eaten-looking spots. In one of my cases, without any eruption elsewhere, the palms were covered with small patches about a quarter of an inch across, without much thickening, and covered with a single layer of white scales. The patient had had two or three attacks; had often been accused of, and treated for, syphilis, without effect on the patches, which

got well under ordinary psoriasis treatment. One of my patients, a girl, had had several attacks of general psoriasis, which always commenced on the palms and soles with diffuse redness followed by rapid exfoliation of the epidermis.

The great majority of cases of so-called palmar or plantar psoriasis are of syphilitic origin, or else are eczema palmare. I have, however, met with one extreme instance, in which it was limited to the left hand for many years, especially affecting the palm. There were heaped-up silvery scales all over the palmar aspect, well-defined scaly patches on the knuckles and wrist, but the disease had never affected any other part except the *right* hand at an earlier period. Cavafy showed a similar case to the Dermatological Society in July, 1894. Psoriasis is occasionally unilateral even when the patches are numerous, as in Kusnitsky's case.\* In Cavafy's the disease was limited to the right forearm and hand for twenty years, having begun on the palm, also a single patch may exist for a long time in the first attack, as already shown, and then there may be a rather rapid development of numerous patches.

**P. Striata.** It has also been seen in a band or striate form down the back of the thigh and leg, a distribution seen more frequently in lichen planus.† Hallopeau and Constensouer record one case and J. Heller another.‡ Scratching will sometimes determine a linear development. Thibierge's case§ had the same distribution, and in addition the arm was affected in the course of the musculo-cutaneous nerve. Sciatica had preceded the eruption on the lower limb. He quotes Besnier, Polotebnoff, and Bourdillon for similar cases following neuralgia.

Psoriasis may attack scars, tattoo marks, vaccination scars, etc. Morel-Lavallée || relates an interesting case in many particulars of a gouty man who fell on his elbows, and psoriasis developed there, as the skin was healing, and then on the palms, soles, and scalp.

\* "Etiology and Pathology of Psoriasis," *Archiv f. Derm. u. Syph.*; vol. xxxviii. (1897). p. 405. plate.

† *Annales de Derm. et de Syph.*, vol. ix. (1898), p. 1120.

‡ Heller, *Deutsch. med. Wochensch.*, 1898, No. 52.

§ Thibierge, *Annales* vol. iv. (1893), p. 1195.

|| *Annales*, vol. ii. (1891), p. 463.

*Mucous Membranes.*—These are rarely involved in psoriasis. There are only a few cases recorded. Sachs's \* is an example of a patch on the inner surface of the lower eyelid. Hutchinson† records a case less conclusive but with more extensive and serious lesions of the mouth, and another with symmetrical filmy patches on the tongue. Bucco-lingual leukoplakia has been several times observed associated with psoriasis, but it is due to so many causes that it cannot be proved to be due to the psoriasis. J. Schütz‡ of Frankfurt in recording two such cases gives a large number of references of psoriasis associated with lesions of mucous membranes.

The *nails* of the fingers and toes may be affected in varying degree, either alone, or more often associated with the disease elsewhere. Several are usually symmetrically involved, sometimes one, but rarely all, and it may begin at any part of the nail. Sometimes a small patch of psoriasis may be seen underneath the nail, which loses its polish, becomes opaque, thickened, pitted, furrowed transversely, of a dirty fawn or brown color; the nail splits, breaks, especially at the end, and may get detached from its bed from the accumulation of epidermis beneath it; or the disease, as Mr. Hutchinson well describes it, may "begin by a little patch of discoloration under the free corner of a nail, and the patch extend down one or both sides to the root."§ He regards this as absolutely characteristic of the disease; but although most commonly due to psoriasis, it may occur from other causes.

The disease may remain limited to this strip of nail, but more often affects the whole to a greater or less degree. All the above characters vary in intensity, from a slight pitting without discoloration, up to enormous thickening and raising up of the nail from its bed even to half an inch in thickness, as in the case of palmar psoriasis just described, a case of which it may be mentioned that all the members of the Dermatological Society concurred in its being of non-specific origin. It is probable that those cases which begin at the distal end are an

\* Internat. Atlas of Rare Skin Diseases, Lief. ix., Plate XXVII., Fig. 2.

† *Archives*, vol. ii. (1890), p. 160; also vol. iv. (1893), p. 315.

‡ *Archiv f. Derm. u. Syph.*, vol. xlvi. (1898), p. 423.

§ "Diseases of the Nails and their Significance as Symptoms, and Discussion." *Trans. Derm. Soc. Great Britain and Ireland*, vol. v. (1899-1900), p. 1.

auto-inoculation, from scratching the body patches, but that it may also attack the matrix from within, and then produces pitting and other changes, beginning at the proximal end.

Danlos \* records a case of an alcoholic woman of fifty-two who had had previous attacks of the usual distribution, but in the last it was almost limited to the ungual phalanges of the fingers and toes, affecting both palmar and dorsal surfaces, and all the nails were ultimately shed with imperfect renewal on the toes, but the finger-nails grew healthily.

**Sweat duct Psoriasis.**† The lesions are for the most part only one-eighth of an inch in diameter, but may cover a great part of the trunk and limbs. Although acuminate at first, they soon flatten out into slightly scaly spots. The scales are sometimes not perceptible until the surface is scratched with the nail. This variety of *P. punctata* is not very rare, but has not, I believe, been previously differentiated.

**Follicular Psoriasis** is a rare form of punctate eruption situated at the hair follicles. The papules may be millet-seed to hemp-seed-sized, with scaly top, as in a case shown by S. Mackenzie ‡ to the Dermatological Society, or somewhat larger, as in a very remarkable case of mine.§ In both of these cases the eruption was densely crowded and universal. They are lichenoid in general aspect, but do not coincide with the psoriasiform and lichenoid exanthem of Neisser, Jadassohn, etc., described under *Lichen Variegatus*. Tenneson regards lichen acuminatus as a follicular psoriasis, but the general history and course are different. Kracht showed a case at the Moscow Dermatological Society in 1891, in which funnel-like horny pegs were inserted into the follicular orifices.

**Complications and Sequelæ.**—In a young man under Kaposi, for over thirteen months *pustules* in enormous numbers

\* *Annales de Derm.*, etc., vol. i. (1900), p. 737.

† Author's Atlas, Plate XXV., *Psoriasis Punctata*, is an illustration. I have, since that was published, been able to establish the anatomical position of the lesion round the sweat duct.

‡ *Brit. Jour. Derm.*, vol. xii. (1900), p. 17.

§ Author's Atlas, Plate XXVI., *Psoriasis Follicularis*. Plate CCLXXXIV. *Psoriasis Striata*, in Kaposi's Hand Atlas, seems to be a similar case,

were constantly appearing in spite of treatment; a local irritation always determined an outbreak. In exceptional cases *deep pigmentation* accompanies and follows psoriasis where no arsenic has been taken. I have met with one such case in a man with general psoriasis, which seemed on the point of developing into a pityriasis rubra, but was checked in time; the whole of the eruption was a deep sepia tint, which remained after the psoriasis was cured. Brocq met with a case of pity-

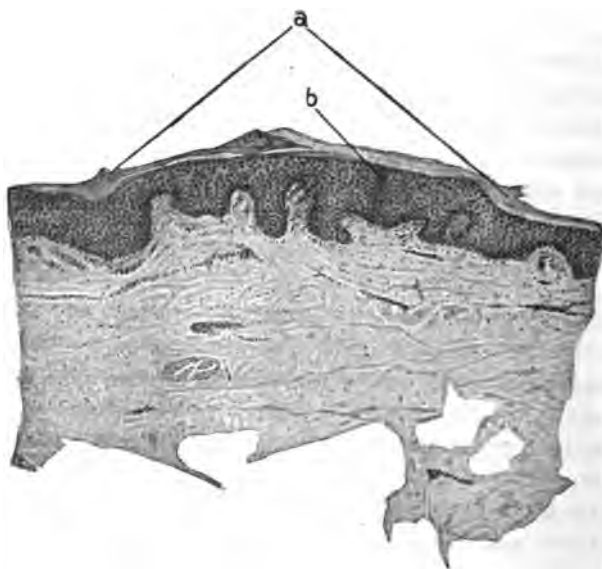


Fig. 21.—*a*, Pin's-head papule of sweat pore Psoriasis; *b*, sweat pore.  
X 1 in. Ross 6 in. Tube.

riasis rubra which became suddenly deeply pigmented, and Plate XXXIV. of Neumann's Atlas is called *psoriasis nigra*, but there it is in small circumscribed patches.

Hallopeau\* records the converse of this, *permanent achromia* being left on the site of the patches. I have also met with a case in a child resembling leukodermia. Nielssen also men-

\* Hallopeau's first case was in 1892; in 1898 he had a second case, æt. eight years. *Annales de Derm. et de Syph.*, vol. ix. p. 690. In a discussion at a congress at Munich, in 1899, Rille said he had seen ten cases, but some of these must have been due to chrysarobin treatment *Annales*, vol. ii. (1901), p. 80.

tions leukoderma after psoriasis, and after both arsenic and large doses of iodid of potassium. Temporary achromia after chrysarobin treatment is well known.

*Superficial scarring* has remained on the site of the patches in very rare instances. I have seen one case following chrysarobin treatment. Hutchinson \* records a case in which slight scars were always left after each attack, but they were not permanent, but relapses never attacked the old sites, and the scale crust was very thin and adherent, so that he never shed any scales. The disease was amenable to arsenic. *Keloid* also may occur; in December, 1891, Anderson showed to the Dermatological Society a boy, æt. eleven, in whom keloid had developed on the site of what appeared to be patches of ordinary psoriasis, to which he had been subject for years. They were most of them in herpetiform groups, from a pea to a bean in size, flat, smooth, white, and only slightly raised. The small ones looked like morphea spots, but microscopically had a keloid structure; the larger ones had a keloid aspect also. They were not in any way traceable to irritating applications, which Besnier † believed to be the cause of Purdon's ‡ case of keloid following psoriasis.

*Papillary Hypertrophy* which may take a warty form is much less common in psoriasis than it is in lichen planus. I have seen it on the leg in an elderly man, and Morris had a case associated with striate ichthyosis hystrix, on the arm of a young man. Hutchinson § had an extreme case on the legs of a man of seventy-six, which got well under the application of creasote and Martin's bandages, and opium internally, to which the cure was ascribed, but I should attach it chiefly to the pressure of the bandage. Kaposi's || case was very remarkable. There was verrucose development on the patches all over the body from the first.

*Epithelioma* followed this warty condition in the cases of

\* *Archives*, vol. iii. (1892), p. 57. Also two cases in vol. i. (1890), p. 273.

† Kaposi-Besnier, vol. i., note, p. 559.

‡ *Jour. Cut. and Ven. Dis.*, vol. i. (1883), p. 203.

§ *Archives*, vol. i. (1890), pp. 374 and 375.

|| Reported in *Annales de Derm. et de Syph.*, vol. iv. (1893), p. 901. Plate CCLXXXIV. of his Hand Atlas probably represents this case; the face was severely affected.

J. C. White, Hans Hebra, Pozzi, Cartaz and Hartzell,\* etc. It occurred on one or more plaques of psoriasis, but apparently not preceded by papillary hypertrophy. It must be borne in mind that epithelioma also occurs on the warts from long-continued arsenical treatment for the psoriasis. In one of my cases, a man of seventy, the keratosis had been present fifty years, and one of the warts became papillomatous, and another epitheliomatous. Gassmann † records the case of a man who, having warts on his hands and a pruritic psoriasis, had an acute development of warts on the trunk and limbs on the site of the psoriasis lesions.

*Children.*—Psoriasis in children differs in no way from its manifestations in adults, except that the patches more often remain small; the disease is seldom so extensive or so severe, the face is more frequently and exclusively affected, and the elbows and knees often escape, but J. Schütz had a case of thirteen months old with both knees affected. I have rarely seen anything approaching to a general psoriasis in a child, but in G. F. Elliot's ‡ case, which began at thirteen months old, when he saw it, æt. eighteen months, it had spread all over the body, including the palms and soles. The eruption was cured in a fortnight with arsenic internally and 30 per cent. of ammoniated mercury ointment externally. No evidence of syphilis in the infant or its family history. An hereditary history is, I think, to be more frequently obtained when the disease begins in early childhood.

Nielssen says the eruption lasts longer in children than in adults, but that is not my experience.

*Etiology.* §—*Age.*—Psoriasis may occur at any age after five

\* Hartzell gives a summary of previous cases. Reprint in *Syd. Soc. Selected Essays*, vol. clxx. (1900), p. 259.

† *Archiv f. Derm. u. Syph.*, vol. xli. (1897), p. 317.

‡ *New York Med. Rec.*, July, 1886, p. 8.

§ Nielssen of Copenhagen analyzed 616 cases, *Monatsh. f. Derm.*, October, 1892; *Syd. Soc. Trans.* He found that two-fifths began before fifteen years. Bulkley, "Clinical Study and Analysis of 1000 Cases," *Trans. Internat. Cong. Derm.*, Paris, 1889, p. 878, and "Clinical Notes 366 Private Cases," *Trans. Med. Soc.*, State of New York, 1895.

*Author.*—Introduction to Discussion on Etiology and Pathology of Psoriasis at Brit. Med. Assoc. meeting, 1893. Abs. *Brit. Jour. Derm.*, vol. v. (1893), p. 277, with analysis of between eight and nine hundred cases.

years. It is rare under three years, and I have only seen one case under two years, but Kaposi had one at eight months, Hans Hebra at six months, Neumann at four months, Billard at three months, and Rille \* showed a case at a society in Vienna where the diagnosis was not disputed, æt. thirty-eight days, and it is said to have commenced at five or six days old. In all except Hebra's case there was a family predisposition. There is no limit at the other end of the line; my oldest case was eighty-one, but Wilson had one which began at eighty-five years. Forty per cent. are said to begin below puberty. In the analysis of my private cases 72 per cent. began below the age of thirty, the numbers below 12, between 12 and 20, and 20 to 30 being practically equal; the decades 30 to 40 and 40 to 50 were also equal, 22.5 per cent. together, while the other 5.5 per cent. occurred after 50. Nielssen gave only 2 per cent. after 50. Thus in two-thirds of the cases the disease commenced between 5 and 30 years.

*Sex.*—In my private practice males and females were about equal, and in hospital practice females predominated as two is to one, but foreign statistics give a slight predominance to males. Probably sex as well as rank and occupation have no influence.

*Season.*—Psoriasis is proverbial for its recrudescence in the spring, but on the whole, recent cases are worse in the winter, and older cases in the spring. It appears to be more common in cold and uncertain climates like our own, and in Iceland the proportion is 8 per cent.

*Hereditary.*—It is certainly hereditary in the sense of tissue proclivity, in a considerable number of cases. Rosenthal and Bulkley found 15 per cent. hereditary; nevertheless, the children of psoriatic parents often escape, and it is rare for all the family to have it; I have, however, known five out of a family of seven affected. Like other hereditary diseases, it may skip a generation. Except heredity, we are still in the dark with regard to the etiology of psoriasis; the patients often appear to be the picture of health, even when a large part of the body is covered. In predisposed subjects, it will, however, often be found, on careful search, that the patient, though ap-

\* Rille, *Maladies Cutanées*, vol. xl. (1899), p. 385, with analysis of previous infantile cases.

parently well and complaining of nothing, is not up to his own highest standard of health. Psoriasitic women often have an attack determined by parturition or lactation; and any other depressing influence, *e. g.*, bad feeding, etc., may have the same effect. Violent mental emotion, such as fear, grief, or anxiety, has been the immediate antecedent of even first attacks in several instances,\* and most authors agree that it is very rare amongst scrofulous subjects, but Bulkley disputes this and thinks one-fourth of the cases are of strumous type.

Neumann said that it did not occur in ichthyotic patients, but Jamieson observed an unmodified case in a xerodermatous subject.

Liveing considers gout an important factor, and distinguishes two classes of psoriasis, that of the young and that of the gouty; the gouty begins in adult age, is attended with more itching and less scales, and yields to alkalies and colchicum, such patients lacking the typical clear complexion. Personally, while admitting its influence in some cases, I do not assign a high place to gout as a factor, but I agree that in cases where the first attack occurs over thirty years of age, defective health, especially as regards assimilation, appears more frequently to have been a determining influence. Rheumatoid arthritis and other arthropathies are also factors, and in such cases the nails are very frequently affected, and in the rheumatoid cases there is a great heaping up of the scales at points of pressure.

Gowers relates three cases of psoriasis following the internal administration of borax in gr. 5 doses for epilepsy, and suggests that there is some etiological relation between them; they were all readily cured by arsenic. This observation is confirmed by Liveing. Boric acid from milk is said to produce a furfuraceous rash chiefly attacking the head and face, and also a circinate scaly eruption on the limbs. It is doubtful if these eruptions are true psoriasis.

*Injuries*, such as abrasions, sometimes determine the place of attack, and Köbner has shown that it may develop on the site of pin-pricks and Herioch that it may form on scars.

Strong irritants also appear to be excitants. One of my patients had a strong irritant applied to the patches on his back, a

\* Hardy related such cases.



PSORIASIS RUPIOIDES.

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ring of psoriasis appeared round the patches, but at a considerable distance from them; later original patches spread near to the new rings, but did not coalesce.

*Vaccination.*—Several instances of psoriasis developing on vaccination lesions are on record. Rioblanc \* quoted nine cases and added a tenth, a soldier æt. twenty-two. In Piffard's case bovine virus had been used. The eruption does not remain localized to its starting-point, but generalizes. Cazenave observed it on smallpox scars. On the other hand, J. Grant † of Ottawa records an instance of an extensive psoriasis being cleared off in four weeks after vaccination. It has also been observed as a sequel of scarlet fever, measles, and erysipelas on the affected skin itself, ‡ and has also developed on the site of the vesicles of herpes zoster.

*Contagion.*—Practically it is not considered to be communicable, although from an infant with vaccinal psoriasis Destot § inoculated himself by scarifying the skin over the deltoid and rubbing in the scales. In two days signs of psoriasis appeared on the tip of the elbows, and in a fortnight the disease was well marked. Some months later, having got rid of his attack, he took arsenic as an experiment, and whilst taking it, a fresh attack of psoriasis occurred, and every May he gets a fresh outbreak. Unna states that a nurse gave the disease to three children under her care; Méneau cites a case where the scalp of one sister was probably inoculated by the same comb as that used by her psoriasitic sister; Graves records a case apparently conveyed from master to servant; A. Cantrell records two series of cases suggesting the possibility of contagion, sisters and mothers developing the disease from another member of the family who had acquired it without any known family tendency. While such instances of themselves are not conclusive, they suggest the possibility of contagion which should be borne in mind, so as to look out for evidence; but it is not sufficient as yet to explain away heredity as Nielssen does, by assuming

\* G. Rioblanc, *Annales de Derm. et de Syph.*, vol. vi. (1895), p. 880.

† *New York Med. Rec.*, May 2, 1896, p. 627.

‡ *Med. Times and Gaz.*, March 14, 1863, p. 283.

§ *Jour. Cut. and Ven. Dis.*, vol. i. (1883), p. 203. Also Hallopeau's critique, *Annales de Derm.*, etc., vol. ii. (1901), p. 337, in which he considers Destot's case conclusive. I have seen one case six months after revaccination.

family contagion. Ducrey made numerous experiments to test inoculability, but failed entirely to reproduce the disease; but many admittedly inoculable diseases cannot be transmitted at will, *e. g.*, molluscum contagiosum.

*Pathogeny.*—This is unknown, but there are, out of many hypotheses, two theories, for each of which there is a good deal to be said.

1. That it is primarily a neurosis of the skin, either vaso-motor, as Polotebnoff suggests, or that it is a tropho-neurosis, central or peripheral.

2. That it is due to an organism in the tissues probably schizomycetic, but it is almost certainly not Lang's epidermophyton.

In a practical work like this the question cannot be fully discussed. I can only somewhat dogmatically state that my view of the hypothesis that best fits all the clinical facts is:

1. That the disease is primarily due to a microparasite, which is probably very widely spread, but only grows in certain persons, and that heredity is really tissue suitability for the growth of the organism.

2. That, while the parasite is probably first planted on the skin from without, the symmetry and often rapidly widespread distribution can only be accounted for on the theory that the parasite penetrates into the circulation and is thence distributed.

An analogy is to be found in pityriasis rosea, in which a primary patch precedes the general outbreak for about ten days. In psoriasis, the disease being less acute at first, this mode of development is less easily traced, and extension is sometimes gradual when local infection is possible, and at others volcanic, when generalization through the circulation is the only theory which will account for it. Hallopeau, I am glad to find, is also an advocate of the parasitic theory, as he considers Destot's experiments indisputable. Unna's view, that psoriasis is one end of the chain of the seborrheic process, meets with little support beyond his own circle.

*Pathology.*—There is as much dispute about the pathology as there is about the pathogeny. The changes found in the affected skin are: (1) Those of moderate inflammation (cell exudation, connective tissue cell proliferation, and dilated ves-

sels) in the upper part of the corium, round the hair follicles and sweat ducts. (2) Enormous increase of the horny layers, from premature conversion of the rete cells. Many investigators have come to the conclusion that the process commences in the rete, and that the inflammatory changes in the corium are secondary, while others consider that the inflammation is the primary event, and the rete and horny layer hyperplasia is secondary. According to Auspitz and his followers, psoriasis is not inflammatory, but due to an anomaly of the cornification process, called parakeratosis. (3) Increased development of the rete layers, except over the papillæ. (4) Great down-growth of the interpapillary processes, and consequent enlargement of the papillæ.

**Anatomy.**—The histology of psoriasis has been investigated by myself and by many observers, of whom Wertheim, Neumann, Hebra, and Kaposi on the Continent, Robinson of New York, Thin in England, and Jamieson of Edinburgh may be especially mentioned, among the older investigators, and more recently Schütz, Unna, Kromeyer, Kuznitzky, Kopytowski, Munro, etc. I will first give my original description in comparison with contemporary observers, and then show how the most recent observations modify or alter the earlier ones.

All the German investigators adopt the view of psoriasis being primarily an inflammation of the papillary layer. Robinson appears to have examined carefully all stages of the disease, and his views therefore are especially worthy of attention. He came to the conclusion that the disease begins as a hyperplasia of the rete; and Thin, from an examination of the border of a nummular patch, confirms his view, with which also Jamieson and Tilbury Fox agree. I have excised a papule no larger than a pin's head, where there was only a small cap of scales on the apex, and in the neighborhood of this papule were others, so small as to be unrecognizable by the naked eye, while the horny layers were still affected. I will state briefly what I have observed in these papules and in small patches, and point out any differences in my observations from those of others.

In a pin's-head papule (Fig. 22), the upper two-thirds of the horny layers are raised into a cone, inclosing a space between themselves and the subjacent layers, which are still closely adherent to the rete. The upper layers are, as a whole, increased in thickness and separated from each other. In some of the meshes thus formed lie round cells, which stain with carmine, and are of the size and shape of nuclei of epithelium, which they probably are. Besides these, which are comparatively few in number, there are enormous numbers of minute, circular bodies with a central dark spot, which lie in loose clusters between the separated layers, but which also exist in dense masses, lying horizontally in the still adherent horny layers below. Their appearance certainly suggests that they are organisms of some kind, and probably have a mechanical influence

in separating the layers. As to whether they are a *materies morbi* of etiological significance, or merely grow there because the tissue is diseased, I am not yet prepared to offer an opinion. Similar bodies may frequently be seen in small masses on the free surface, where there are as yet no papules. Later on the lower layers get separated like the upper, but in an earlier stage, when the papule is microscopic, the horny layers are unaffected.

The most striking changes are in the rete. There is considerable increase of thickness as a whole, except over the top of the papillæ. The

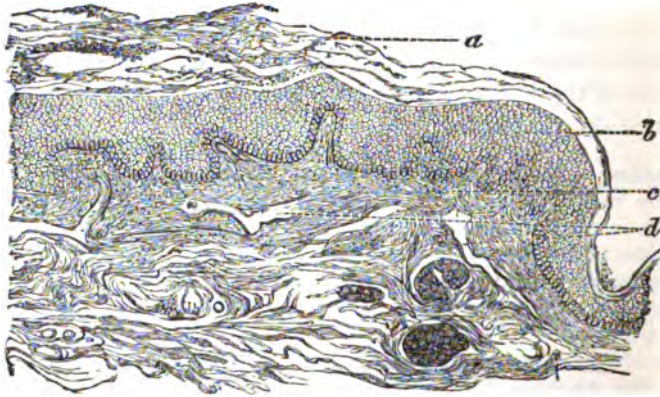


Fig. 22.—Psoriasis. A papule the size of a pin's head.  $\times 125$ .

*a*, scaly cap; *b*, rete mucosum considerably thickened; *c*, moderate cell effusion in the papillary layer; *d*, dilated blood-vessels. The cell effusion was rather more abundant than is depicted in the woodcut.

interpapillary part is increased downward and transversely; this enlargement of their boundaries downward produces an apparent increase in the size of the papillæ. The palisade cells are, in some places, evidently proliferating, and their lower ends form fusiform projections into the papillæ. Sometimes, too, they form more than one layer. The rete cells above these also give evidence of proliferation. These changes are mostly developed in the center of the papule, and diminish toward the periphery, but do not cease for some distance beyond the papule, and are more or less visible in the most minute papules.

The papillæ appear enlarged both in length and breadth, the blood-vessels are slightly dilated, and there is moderate cell infiltration around them, all through the papillary layer. In more advanced patches the vascular dilatation and cell effusion are more marked. The elevation of the papules is mainly due to this cell and serum effusion. For the most part only the upper half of the corium shows cell infiltration; this is the greatest round the dilated vessels, especially in the neighborhood of the sweat ducts and hair follicles; and not only is the infiltration more

abundant round the hair follicles, but it often extends to their terminations in the deepest part of the corium. There is also proliferation of the cells of the follicular wall, and consequent finger-like outgrowths analogous to the interpapillary downgrowth of the rete. A hair follicle is very frequently the center of a papule. Cell effusion extends downward round the sweat ducts, and the glands also exhibit cell proliferation, blocking up the lumen of the lobules, and producing the appearance of the whole gland being a uniform mass of cells. This is more frequent in the gland than in the ducts. In some, the minute round bodies described as lying between the horny layers can be seen between the lobules of the sweat gland. The sebaceous glands are unaffected. I examined carefully the parts adjacent to the papules, and endeavored to find whether the process began in the rete or in the corium, but I could never find the rete hyperplasia without the cell effusion, nor could I find cell effusion beyond the rete hyperplasia.

Accordingly, I fail to find the proof of Dr. Robinson's view, that the process begins in the rete, though I cannot *prove* the contrary. Other points of difference are, that I find very distinct changes in the sweat ducts and glands, which he does not, and that cell effusion round the hair follicles goes much deeper than he describes. This is against one of his arguments in favor of the epithelium hyperplasia preceding the cell effusion, as, according to him, the processes of the hair follicles are produced beyond the cell effusion. I can quite confirm the accuracy of his observations in other respects.

Organisms in the horny cells have been previously described by Angelucci, who stated, at the International Congress of 1881, that micrococci were present in the scales. What their significance may be remains to be proved, but I am not personally disposed to adopt Lang's\* view that they are etiological. I have compared my observations thus closely with Robinson's, † because he is a careful observer on the earliest visible lesions of psoriasis, and most other investigations have been on more advanced lesions. In larger patches, Thin's ‡ observation that the rete, or the top of the papillæ, is thinned by the premature conversion of the rete cells into horny cells is, I believe, true, and borne out by the clinical facts, but does not hold good for the earliest papules. Neumann's statement, that prickle cells are absent in psoriasis, is also not true of the earlier stage of the process, according to my observations.

Munro claims to have examined earlier papules than previous observers have done, but does not appear to be aware of Robinson's and my own observations, which were made in 1881, and described in my first edition, not only from a papule just recognizable by the naked eye, but on microscopic changes before there was visible elevation.

Munro states that the superficial cavity I have described above contains leukocytes, and that it is therefore really a dry abscess, and claims

\* Wolff of Strasburg has shown that Lang's epidermophyton is really eleidin, and disappears when the fat is soaked out of the section.

† Robinson, *New York Med. Jour.*, July, 1878, vol. xxviii.

‡ Thin, *Brit. Med. Jour.*, July, 30, 1881.

that it is the primary lesion, and that the multiplication of these "abscesses" and the secondary hyperkeratosis make up the psoriasis scale crust, and that all the other changes described by previous observers are later and therefore secondary. My observations led me to believe that the rete changes precede those in the horny layers, and that the vascular and rete changes went on hand in hand. Munro says nothing about the masses of minute round bodies, too small for leukocytes, and I cannot say whether they are microbes or perhaps only keratohyalin globules, such as Wolff observed and thinks are what Lang called "epidermophyton," but at all events their nature should be further investigated. The round cells between the horny layers Munro calls leukocytes I also observed, but not in such masses, but the modes of preparation were imperfect twenty years ago compared to now, and they probably fell out in preparing the sections.

Kopytowski \* claims to have anticipated Munro, but in the Russian language, and describes the horny layers thickened and separated by layers of leukocytes, diffuse or in foci; prickle cell layer also thickened, and also with leukocyte foci between them, and, mixed with degenerated epithelial cells, formed true abscesses and in some places cavities with serum. The other changes being those repeatedly described, inter-papillary processes enlarged, fusiform cells at the apex of the enlarged papillæ, vascular engorgement, proliferation of epithelial cells and ecchymoses, and, in short, inflammation of the papillary layer. He considers the inflammation primary, the parakeratosis secondary, and that the results are attained by successive attacks of inflammation. Unna's observations set forth the primary parakeratosis and epithelial growth, and the secondary vascular dilatation view; for him, thickening of the horny layer is the first change. He ascribes to his morococci the same organisms which he finds in seborrheic eczema, a pathogenic rôle. He lays stress on the almost complete disappearance of keratohyalin and eleidin from the basal horny layer, with retention of most of the cell nucleus. He also observed layers of cells between the horny cells, mostly leukocytes, but thinks some are epithelial nuclei. The granular layer disappears at first, but is replaced at a later stage with increased keratohyalin.

All agree that the silvery aspect of the scales is, as Rindfleisch pointed out, due to permeation with air.

In the papillary layer the cells round the vessels are proliferated connective tissue cells, according to Unna, and leukocytosis emigration is limited in degree in the papillæ and epithelium.

The above are samples of the different views put forward, but on almost every point "*Tot homines quot sententiæ*" is true, and there is still room for the next generation of ardent histologists to investigate and theorize.

\* Subsequently published in the *Annales de Derm. et de Syph.*, vol. x. (1899), p. 705.

*Diagnosis.*—The usual run of cases presents no difficulty in diagnosis. The absence of discharge throughout its whole course; the position of the patches, fairly symmetrically distributed upon the extensor surfaces, especially the elbows and knees; their well-defined borders; the imbricated white scales adherent into crusts, covering the raised, reddened base; and when the scales are picked off, the bright red, easily bleeding points, which start into view—form a group of symptoms of a strongly differentiating character. To these Bulkley adds the possibility of peeling off a thin pellicle, after all detachable scales have been removed. But when in one or other of the many phases presented by psoriasis some of the above features fail to be characteristically developed, unless the symptoms are taken as a whole, difficulties may arise in distinguishing it from lichen planus and lichen acuminatus, some forms of eczema, pityriasis rubra, squamous syphilids, seborrhea, tinea circinata, and lupus erythematosus.

*From Lichen Planus.*—Difficulty only arises when the lichen planus is in patches or infiltrations.

Psoriasis chooses the elbows and fronts of the knees; L. planus the flexures of the wrists and inner side of the knees or, even when it does appear on the extensor surface, the elbows are not the usual seat.

Psoriasis is conspicuous for the quantity of its scales; L. planus is conspicuous for their absence or scantiness, and there are never scaly crusts.

The ground color of psoriasis is a bright red, that of L. planus is of a bluish-red tint, unless more acute than usual.

Psoriasis begins by the formation of a small, flatly convex papule, scaly from the first, but sometimes requiring a slight scratch with the nail to reveal it. The papule speedily enlarges by spreading at the edge into a patch. L. planus begins as an irregular, flat, shining, smooth papule, and the patch is formed by the aggregation of many papules. The lichen infiltrations, which are more scaly than the patches, are produced by the springing up of fresh papules between the patches; the large patches of psoriasis, by the component patches spreading at the periphery until they meet. The thickening of the skin is much less than in the lichen infiltration.

Psoriasis, as a rule, leaves no staining, unless treated with arsenic. After *L. planus*, staining is always a marked feature.

*From Lichen Acuminatus.*—Error may arise between the papular stage of the lichen and psoriasis punctata, and between general *L. acuminatus* and general psoriasis; but in *L. acuminatus* the papules are acuminate, and begin on the trunk, and the infiltrations are formed as in *planus*. When both are general the scales are much less flaky, but harder and more horny, and the thickening of the skin is much greater in the lichen.

*From Eczema.*—As a rule, this is easy; but when eczema has ceased to discharge for some time, or when the inflammation has not been intense enough to produce discharge, there is occasionally great difficulty in distinguishing it from an ill-developed patch of psoriasis.

Eczema prefers the flexures, and then begins as groups of small vesicles on an inflammatory base, but it is quite common on the extensor surfaces, beginning there as groups of acuminate papules which may go on to vesiculation. It is exceptional not to get a history of discharge in eczema, which never happens in psoriasis, unless it is irritated.

Sharp definition at the border of the patch is the rule in psoriasis, and is seldom seen in eczema, which shades off into the healthy skin. This is a very valuable help in doubtful cases. Eczema crusts are dried inflammatory exudation with few scales; psoriasis crusts are all scales. When eczema has been dry for some time there may be only scales, but these are not then heaped up into crusts. Pick off the crusts of psoriasis, and you get bleeding; pick off the crusts of eczema, and you get serous discharge. An eczema patient is very often in bad health; a psoriasis patient is often in good health. In eczema, the complexion is nearly always pale and muddy; in psoriasis, the complexion is usually bright and ruddy.

When, however, there are only one or two patches of eczema, especially if upon the front of the leg, and there has been no discharge, or so little as to be unnoticed by the patient, the distinction is by no means easy, and only to be made by careful consideration of every point. Some cases of hyperemic psoriasis limited to the scalp are very like eczema of that part; but in psoriasis, where the eruption extends a little beyond the

scalp, the edge terminates abruptly. Although intensely red, the surface is quite dry, while discharge would always be present in eczema with the same degree of redness. When an old patch of eczema is unusually well defined at the edge, diagnosis is sometimes difficult; the fact of the patch being away from the usual psoriasis positions would be of value.

*From Pityriasis Rubra.*—The diagnosis gives trouble only between a pityriasis rubra of a few days' duration and an acute psoriasis of moderate extent, or when both have become general.

The development is slow in subacute psoriasis, often taking months or years to become general; pityriasis rubra is very rapid, two or three weeks, or even less, being often sufficient to cover the whole body.

Psoriasis is never absolutely universal, some intervals of healthy skin being always present; pityriasis rubra is nearly always really universal.

The scales are thin, papery, and never in crusts in pityriasis rubra; they are easily detached, and do not conceal the reddened skin beneath, which is generally not so thickened as in psoriasis.

In the acute forms of psoriasis the distinction is more difficult, as here there is deep redness, flaky instead of crusted scalliness, and a less defined border than usual; but the extension is still comparatively slow, the scales are not so large or thin, nor so rapidly reproduced, and the disease remains with large intervals of healthy skin between, however extensive the areas affected may be. There is, however, always the possibility that this form of psoriasis may develop into pityriasis rubra, so that the dividing line is often a narrow one.

*From Tinea Circinata.*—The few non-symmetrical patches in tinea circinata coming anywhere on the body, the margin at first papular, and the scanty scale formation, should excite suspicion of the true nature of the disease, which microscopic examination would confirm.

*From Seborrhea of Scalp.*—Psoriasis is usually in patches, seborrhea nearly all over the scalp; seborrhea scales are fatty and dirty-looking, on a non-inflamed surface. Where psoriasis is all over the scalp, it spreads beyond the hairy part, and its true nature is then evident; moreover, it is rare then not to

find psoriasis in its other favorite seats, or at least a history of its having been there. The diagnosis from the various forms of seborrheic dermatitis is given with those forms respectively.

*From Lupus Erythematosus.*—This comes usually on the cheeks, where psoriasis is seldom seen. The scales are scanty, the edge more raised, the tissues more thickened. In the early stage horny plugs are often formed in the patulous sebaceous openings, and if the disease is removed spontaneously, or by treatment, more or less evident scarring is left.

*From Syphilids.*—Both secondary and tertiary squamous syphilids may be mistaken for psoriasis. Errors arise chiefly from laying too much stress on one or two points, instead of considering the symptoms as a whole. The following points in the secondary squamous syphilids will assist in arriving at a correct conclusion:

An acquired syphilid is rare in a child, and psoriasis is rare under three or four years. The patches do not favor the extensor surfaces so much as the flexor, nor are they seen at distant parts of the body, with extensive intervals of freedom from disease. They are always small, seldom over half an inch in diameter, and there is no tendency to enlarge peripherally. The scales are scanty, and often dirty-looking. The color may be bright red at first, but in a few days a brownish-red tint is acquired. A fawn-colored stain is always left when the eruption subsides. The syphilid comes out in crops, and all stages are often present at the same time. Besides this, there are often concomitant eruptions of a different character, and nearly always corroborative evidence, such as sore throat and tongue, bone pains, iritis, or some other characteristic symptoms.

I have seen patches on the front of the leg larger and more crusted than usual, very like ordinary psoriasis, but there were scaly patches on the palms and soles to aid to a right conclusion; these shelled off and left a scaly collar round the original site, which was quite unlike psoriasis.

*From Gyrate and Circinate Syphilids.*—These also imitate similarly shaped lesions of psoriasis. Here again the position, color, and scales differ as described above, and the syphilitic cachexia is usually well marked.

*From Tertiary Squamous Syphilids.*—One form of this closely resembles some cases of psoriasis. Here again position may

assist. The syphilid is much more often on the face than psoriasis; the edge is more raised, giving the appearance of a depressed center; the scales, though white, are not imbricated and ulceration is very liable to occur, but even without this some scarring and deep pigmentation are usual sequelæ. The number of patches is seldom large, and they are not symmetrically arranged.

*Prognosis.*—The prognosis of psoriasis is good for any one attack, but bad for the disease as a whole. Although not always easy, we can promise to remove the eruption of any one attack, but we know of no means of preventing recurrences, which are almost sure to occur, sooner or later, in at least ninety per cent. of the cases. The frequency of recurrence is very variable. In some people it is an annual event, or even more frequent, one attack overlapping another even while under treatment. In others there may be an interval of years, these variations happening perhaps to the same individual at different periods of life. Left to itself, it may go on for many years with remissions and exacerbations, or it may sometimes disappear spontaneously.

We can, however, in some degree limit the extent of the eruption by timely treatment, and the maintenance of good health exercises an important influence in mitigating the severity of an attack, and even in warding it off for some time. For as it has been shown that any depressing influence may determine an attack in one predisposed, so averting such influences must be of some service in prevention. Since, however, our efforts in this direction must often be unsuccessful, the disease is pretty sure to recur, and we at best only lengthen the intervals of freedom, or diminish the severity of an attack. The universal form is said by Hebra to be especially obstinate, and occasionally fatal; probably these were cases I should call pityriasis rubra. I have never seen a case in which it is not possible to remove the eruption for a time, if the patient would give himself up to the treatment, though much perseverance is sometimes required. Failure occurs only in chronic alcoholics, or when the patient subordinates his cure to his business or social engagements.

*Treatment.*—Although the eruption of psoriasis can often be removed by internal or external treatment singly, a judicious

combination is the quicker and more effectual method, as this disease is frequently so obstinate as to tax all our resources and patience.

Favorable cases of moderate extent take from about three weeks to three months to remove the eruption, the shorter period only being required when the patient will give himself up to the treatment.

As there are, in a large number of instances, no special indications as far as the general health is concerned, empirical remedies are generally resorted to, but I am firmly convinced that if any defect, however slight, in the surroundings or health of the patient can be detected,—and careful search should always be made,—the soundest practice is always to endeavor to remove such defects before attempting the internal use of specific medicines; and in a large number of cases thus treated the eruption is removed without any occasion for their use. The direction in which the defects of health are most frequently found lies in those cases tending to the depression of the general vitality, *e. g.*, overwork, a relaxing climate, sexual excesses, suckling, or other drain upon the system. Gout, rheumatoid arthritis, and rheumatism have a causative relation in only a moderate number of cases. These indications must be met as far as the patient's circumstances allow; but failing to find any of these, we fall back upon specifics.

The general consensus of opinion points to arsenic as our stock remedy. It is apt, consequently, to be used far too indiscriminately in this disease, in which it is generally beneficial, as well as in many others, in which it is either useless or injurious. The other specifics are thyroid extract, salicin and its derivatives, and mercury. The general indications for and against these remedies will be given.

*Arsenic.*—There are few diseases of the skin in which arsenic is generally considered to be so beneficial as in psoriasis, but it is too often most disappointing in its effect.

Great variations exist in the effects of arsenic upon the eruption; even in the same person, it will at one time remove the disease, at another fail altogether. It is usually slow unless assisted by local treatment, and three months of full doses is required to give it a fair trial. Often improvement does not commence until a considerable quantity has been taken. With

regard to the patient, it is most indicated when the digestive organs are sound, and there is no other defect of health to grapple with, unless it be anemia, when arsenic would be beneficial. And as regards the psoriasis, it is likely to act best when the eruption is chronic and the hyperemia moderate.

It is contra-indicated, when there is an idiosyncrasy which makes the patient especially intolerant of it; when there is an inflammatory condition of the alimentary canal (except in drop doses in cases of chronic gastric catarrh); and when the eruption is coming out acutely and the patches are very hyperemic, as it often aggravates the eruption. Itching of the eyelids, redness of the conjunctivæ, nausea, vomiting, colicky pains, and diarrhea, are among the earliest symptoms which warn us to diminish the dose, but it need not be given up at once. As regards the skin, it aggravates the itching for a time in some cases, so as to make it almost intolerable, and not infrequently, fresh patches appear while taking arsenic, even while the old ones are subsiding. As already mentioned, pigmentation after the subsidence of the eruption is apt to occur in cases treated by arsenic.

If given for only three or four months, the pigmentation will usually be localized to the site of the patches; but when given for very long periods, general pigmentation, general thickening, and warty development of the palmar and plantar epidermis may ensue. It should therefore not be so long continued, and it is, moreover, useless for the disease, as arsenic has no prophylactic influence, and acts only locally on the diseased area.

The drug may be given in the form of liquor arsenicalis, liquor sodæ arseniatis (about half the strength of liquor arsenicalis), cacodylate of soda, or the Asiatic pills, which are in much favor abroad, and contain one-twelfth of a grain of arsenious acid. At first one pill is taken three times a day, and the number may be increased until ten or twelve a day are reached, and continued for several months. Three or four thousand have been taken in this way; but Kaposi said that if marked improvement had not occurred with five to six hundred pills, arsenic might be considered to have failed. Any colic and diarrhea may, to some extent, be controlled by opium. I prefer liquor arsenicalis because it admits of free dilution, and thus dimin-

ishes the risk of gastro-intestinal derangement, which is so apt to ensue during the arsenical course. As another means of avoiding this, the English plan is to give arsenic immediately after meals. The Germans, however, give it before meals; but few English stomachs can bear it given thus, and I believe it has no advantage *quâ* the skin. The dose of liquor arsenicalis should begin at three minims three times a day, and it may be increased to ten or fifteen minims a dose, if the drug is well borne. Much larger doses have occasionally succeeded where moderate ones have failed; but arsenic should always be given with caution, and  $\mathfrak{ss}$  of tinct. lupuli with each dose seems to facilitate its toleration. Great differences, however, exist in this respect. Some people can take large doses for months without any ill effects, while in others two or three minim doses produce so much irritation of the alimentary canal that the drug has to be abandoned. It should not, however, be given up until efforts have been made and failed to avoid these symptoms.

Subcutaneous injections have been tried in some cases, and very good results have been obtained in from one to six weeks; but my personal experience is that it is too painful and inconvenient for daily practice, as sufficient advantages cannot be promised to compensate for the drawbacks.

*Cacodylate of soda* is a compound of organic arsenic which has recently been advocated by French physicians as superior to the other salts of arsenic in efficacy and safety, so that, although it contains fifty-five per cent. of arsenious acid, it does not produce gastro-intestinal irritation or poisonous symptoms even in three-grain doses. This is, however, not correct. Murrell gave one grain three times a day in pill, and after eleven doses serious symptoms were suddenly produced. A grain of the salt is said to contain arsenic equivalent to about one-tenth grain arsenious acid, or over sixty minims of Fowler's solution. I have given the recommended dose of half a grain three times a day in several cases; but after Murrell's experience shall not continue it. I have not seen any results either good or bad, but have not given it for long together. If given at all, it would be wise to begin with one-sixteenth of a grain in solution and gradually increase it. I am not aware of results sufficiently satisfactory having been obtained



**I SORIASIS—ACUTELY INFLAMMATORY.**

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to show its therapeutic superiority over the old forms of arsenic.

*Thyroid Extract.*—This was strongly advocated by Byrom Bramwell for psoriasis, who gave it largely, but its drawbacks and uncertainty of action have considerably restricted its use. Norman Walker, who saw Bramwell's practice, regarded it as a dangerous remedy, and gives an emphatic opinion that it should not be used in psoriasis. I have used it largely, and if the following indications and contra-indications are observed there need be no danger in its use, and in a limited number of cases its action is often both efficacious and rapid. Unfortunately, one can never predicate when it will succeed even in the same patient, as I have several times known it remove one attack satisfactorily and quite fail in another.

It should not be given to elderly people or to those whose hearts are weak, but young persons, even children, usually tolerate it well. It should not be given to a developing psoriasis, as I have seen, repeatedly, a copious increase of the new lesions from it. The dose should not be more than five grains a day to begin with, which in a week may be increased to ten grains and in a fortnight to fifteen grains, if it is well borne; five-grain tabloids are the most convenient form of giving it. The risk of disagreeable symptoms is out of proportion to the advantage of taking larger doses, which should never be given unless the patient is in bed and under supervision. Bramwell, however, got up to forty tabloids a day. Headache, sleeplessness or giddiness, and the pulse rising over 100° F. should be the signal to stop it or diminish the dose. Patients get thinner while taking it. Less frequent symptoms are nausea, vomiting, failure of breath, diarrhea, and general rheumatic pains. Iodothyryn is supposed to be the active principle of thyroid extract, but it is doubtful whether it is any more efficacious than the extract. The initial dose is five grains. Thyroid colloid is very powerful, and it is best not to give it to patients going about. The initial dose is half a grain.

*Salicin and its Derivatives.*—In 1895\* I first advocated the use of salicin and salicylates for psoriasis. Since then I have used them very extensively, and have found them of great

\* "Salicin and Salicylates in the Treatment of Psoriasis and some other Skin Affections," *Lancet*, June 8, 1895.

value; latterly, as salicin seemed to act as well as salicylate of soda, I have used it almost exclusively, as it rarely disagrees, while salicylate of soda often does. Salicin has the advantage over arsenic and thyroid that it may be given in the spreading stage of psoriasis, and will often check it, while the other two are apt to increase the eruption. As far as this is concerned, it has no contra-indications; while it is not always successful, it never seems to aggravate the disease, and the proportion of cures with it is higher than in the other two. In not more than two per cent. of the cases I have seen the papular erythema, which is well known to occur sometimes with salicin compounds. In a few cases I have had to stop it because it upset the stomach, and produced a headache or depression. To counteract the possibility of the last, I prescribe *mij tincturæ nucis vomicæ*. The dose of salicin must be an adequate one. I rarely commence with less than fifteen grains three times a day, and increase it to twenty grains; it is seldom necessary to go beyond this, but I have given up to sixty grains three times a day without bad symptoms. Under its use, in most cases, the patches get paler, the scales looser, and then fall off and reform much less abundantly, the patch clears in the center, then the outer ring breaks up, and only fragments are left, which are best removed by local applications. It has much less effect on psoriasis of the scalp than elsewhere. Like everything else, it fails in some cases and is not a prophylactic against other attacks. Although serviceable if there are rheumatic or rheumatoid symptoms present, it acts in my belief as a microbicide in the blood, in which salicin is said to break up into salicylic and carbolic acids. Stimulating local treatment should not be employed whilst giving salicin, but soothing applications are sometimes adjuvant.

*Mercury.*—Mapother is a strong advocate for the administration of mercury internally on the microbicide theory, and claims uniform success with it. I have not used it to any extent by the mouth, but in a few cases which were rebellious to all the other specifics and various other treatment I have succeeded in removing the eruption with intramuscular injections of perchlorid or sozoiodolate of mercury, the latter being less painful, once a week in the same way as detailed in the treatment of syphilis, using 1-4 grain. While the slight pain and incon-

venience of weekly injections prevent an indiscriminate use, it is well worth trying in obstinate cases. Brault used yellow oxid injections in two cases with success.

*Other Specifics.*—Kaposi recommended carbolic acid in 1-2 grain pills, five to ten daily.

*Turpentine:*  $\mathfrak{M}\text{x}$  to  $\mathfrak{M}\text{xxx}$  three times a day I have found useful in hyperemic cases (*vide* Formulæ Miscellaneous Mixtures for directions how to give it). Antimony:  $\mathfrak{M}\text{v}$  to  $\mathfrak{M}\text{x}$  of the Vinum antimoniale, advocated by Hutchinson and Morris, is sometimes successful in acutely inflammatory cases. *Diuretics,* as acetate of potash, are often useful; while *iodid of potassium*, so strongly recommended by Greve and Boeck of Christiania and Haslund of Copenhagen, is also a powerful diuretic, especially when given in the heroic doses they advocate, up to 50 grams a day; possibly it also acts as a microbicide, but although good results may sometimes be obtained with it, it is not a drug to give indiscriminately, and if given at all, small doses should be given at first. It is contra-indicated where there is any renal or cardiac defect, as even small doses will produce severe eruptions in persons with defective power of elimination.

On the whole, what may be called the rational treatment of the patient, and the first four specifics described in detail, pretty well cover the ground, and leave but small room for these last-mentioned drugs.

*Local Treatment.*—Local measures play a most important part in the treatment of psoriasis, and are alone sufficient for the removal of the eruption in mild cases. They are of two classes: first, those used to remove the scales, and so prepare the way for the second, which exercises a directly curative effect upon the diseased skin, and so prevents the renewal of the scales.

In the first class come alkaline baths, wet packing, india rubber clothing, inunction with oil, vaselin, or fat, soft soap, and even caustics, and a six per cent. solution of salicylic acid in spirit. The fat, etc., requires to be well rubbed in. Many cases get well with one of the above methods alone, if persevered with; continuous baths in simple tepid water have also been successful. Much depends on the thoroughness with which the scales are removed. In indolent patches soft soap rubbed in firmly and for several minutes with wet flannel into each patch is one of the best methods, but it is no good to try

and rub over several patches at once. Half the battle depends on the thoroughness with which the preliminary and curative agents are rubbed in. In an extensive case two or three hours a day can be usefully spent in the application of the different remedial agents. For an alkaline bath, two to four ounces of bicarbonate of soda are added to thirty gallons of water at a temperature of 95° to 100° F., and the patient soaks in it for twenty minutes and rubs off the scales. It may be taken three times a week. After the scales have been removed, the selection of a suitable remedy is required, and as there are a legion of them, the principal only are given, with some points for guidance as to which to employ.

In the acutely inflammatory form, or whenever the hyperemia is very great, as in the cases described as *P. eczémateux*, the soothing remedies recommended in the treatment of eczema are alone suitable, such as continuously wrapping up the parts with calamin liniment, simple olive oil, or inunction with the latter. An excellent plan also is wrapping the affected part in cloths or lint soaked in the glycerin of subacetate of lead 1 to 8, and covering it with hat lining or other waterproof. This both soaks off the scales and diminishes hyperemia, and some parts get well with this alone. Alkaline baths are useful here also, as indeed in all stages of the eruption.

The special remedies suitable for the less hyperemic cases are all microbe destroyers, and should be rubbed or scrubbed in, not merely laid on.

Much experience and judgment are often required for the selection of the proper remedy in any particular case. The first object always is to remove the scales; the activity of the inflammation is next to be judged of, and in any case where there is a doubt it is always safer to use the weaker preparations, and when the strong are thought to be suitable to employ them well diluted at first. Remedies, therefore, have to be considered according to their stimulating and penetrating effect, since a remedy that would be most valuable for a chronic indolent patch would aggravate the eruption when it is congested.

Frequently, patches in one part of the body require different treatment from patches in another; and if a fresh attack supervenes upon an old one, the remedies used for removing the old

patches often aggravate the new, which probably require a much milder treatment.

The convenience of patients who have to go about has also to be considered. A very objectionable remedy is used irregularly by the patient, who is likely to blame the doctor for the imperfect result. Unfortunately, many of the best remedies stain or smell, and if the choice between the two evils has to be made, most persons prefer the stain to the smell, as most of the eruption is out of sight. Staining preparations, on the other hand, are obviously unsuitable for the face or other exposed parts. When the eruption is very extensive ambulant treatment is generally unsatisfactory, while, if the patient can be induced to lie up, the extent is of less consequence, and the doctor is untrammelled in his selection of remedies. Obstinate as psoriasis often is, it is rare indeed that success in the removal of the eruption for a time cannot be attained by skill and perseverance.

*Chrysarobin*,\* introduced by Balmanno Squire, stands first as the most valuable remedy we possess, but used in the strengths generally prescribed of 15 grains to 3j to the ʒj as an ointment or paint, is for the most part only adapted to those cases requiring strong stimulants. While very powerful and rapidly efficacious in suitable cases, it has a good many drawbacks attending its use, therefore the patient should always be warned of its probable effects, viz., an erythema of the skin, extending far beyond the part to which the drug is applied, attended with severe itching, heat, pain, and swelling; this subsides in a few days if the remedy be discontinued, and often even if it is not, leaving a dirty-looking desquamation. If used in the neighborhood of the face, conjunctivitis is apt to occur, and the erythema has been mistaken for erysipelas. It dyes the hair, nails, skin, and linen yellow, which turns to an indelible purplish-brown after washing, due to the alkali in the soap.

On the other hand, the patches are removed often very rapidly, leaving a whiteness † on the site of the eruption for a short time, in sharp contrast with the skin around, which is of a deep red, more from staining than congestion. Some of these

\* This was formerly called chrysophanic acid, and exists in the proportion of eighty per cent. in Goa powder.

† Author's Atlas, Plate XXXVIII., Fig. 2.

disagreeable effects may, however, be often avoided by using Auspitz's method:  $\mathfrak{z}$ j of pure gutta-percha is dissolved in  $\mathfrak{5x}$  of chloroform, this is called traumaticin;\* to this  $\mathfrak{z}$ j of chrysarobin is added, and after removing the scales this emulsion is painted on and forms a film; it is renewed every two or three days, or may be painted one coat over another for four days before removing the film. Besnier's modification is to paint on a solution of chrysarobin in chloroform, and then cover it with traumaticin varnish. Both methods are equally efficacious. As thus used the drug is only suitable for indolent patches, or after the hyperemia has been subdued by other means, but I have found it valuable in a much wider range of cases by using minimal doses of 1, 2, or 3 grains of chrysarobin to  $\mathfrak{z}$ j of zinc ointment. A grain to the ounce may be used even in most cases of acute psoriasis. It is wise, however, not to use it over a very extended surface in one region, as even this quantity will sometimes excite the peculiar erythema. In all doubtful cases try it on a small area to begin with.

*Anthrarobin* and other imitations of chrysarobin are practically failures.

*Pyrogallie Acid* in the form of an ointment (from gr. 10 up to  $\mathfrak{z}$ j to the  $\mathfrak{z}$ j) is not quite so strong or rapidly efficacious as chrysarobin, but it is a very good remedy. It excites no inflammation, unless applied continuously, and even then not beyond the point of application; but it stains the skin and linen, and may produce dryness, itching, and follicular papules or pustules. It should, moreover, only be used over a limited area at a time, as it may be absorbed, and would then produce strangury and olive-green urine, with moderate fever and nausea. Large doses of dilute hydrochloric acid are said to act as an antidote and preventive of these ill effects.

*Resorcin*, in an ointment of gr. 10 to  $\mathfrak{z}$ j to the  $\mathfrak{z}$ j of lard or lanolin and vaselin, is often efficacious for an average case; it is odorless, but stains the nails slightly, but less than chrysarobin or pyrogallie acid, and may be used for the face. In obstinate patches 2 or 3 grains of biniodid of mercury is a useful addition.

Salicylic acid, gr. 15 to  $\mathfrak{z}$ j to  $\mathfrak{z}$ j of excipient, is sometimes

\*The proper way to make this is described in Formula No. q, Varnishes, as few chemists dissolve the gutta-percha enough. The British Pharma-

valuable for obstinate patches on the scalp and knees with dense adherent crusts; it does not smell or stain.

*Soft Soap and Spirit.*—To limited patches, as on the front of the knee, scrubbing well with spiritus saponatus kalinus is often one of the best means to adopt; and for the scalp, when not actively hyperemic, the same liniment rubbed in with a piece of flannel dipped in hot water and then in the liniment removes the scales, and after rinsing it off with tepid water, a mercurial ointment, one or two grains of perchlorid or biniodid to the ounce, should be rubbed in. This treatment rarely fails on the scalp, if the patches are not inflamed. Oil of cade is sometimes a useful addition to the spirit soap. Hebra's "Wilkinson's ointment" is a strong, but very effectual application in properly selected cases, especially obstinate patches on the knees.

The *mercurial* ointments should of course only be used over a limited surface at a time. When mild stimulants only can be tolerated, they are most useful—hyd. ammon. gr. 10 to 3ij to 3j of vaselin or other simple unguent; hyd. oxidum flav. in the same strength, or the two combined; ung. hyd. nitrat., more or less diluted; hyd. biniodid. gr. 3 to gr. 10 to 3j. The last is a stronger stimulant. As they neither smell nor stain they are often preferable for the face, scalp, and other visible parts, and they may often be combined with other drugs.

*Tar.*—The vast majority of cases will bear stronger stimulants, of which tar in some form is the most universally employed. Ung. picis liquid., pure or diluted, is often effectual, but dirty, and smells disagreeably; less unpleasant are the oleum cadini, oleum fagi, oleum rusci, or creasote, ʒss to ʒiv to 3j, as ointments, or as lotions dissolved in spirit, with or without soft soap; or liquor carbonis detergens, from ℥xx to 3j of water and upwards to the undiluted liquor, are all valuable remedies. Tar baths are also useful. Tar, however, has many disadvantages; serious constitutional symptoms, as well as acneiform and other eruptions of the skin, may ensue, if absorption occurs from its vigorous employment, or from some idiosyncrasy of the patient. It also smells strongly and stains the skin. Where the patient will give himself up to treatment, an excellent plan is to paint on with a stiff brush the copeia uses bisulphid of carbon as a solvent, but its fecal odor is an insuperable objection to it.

liquor carbonis detergens or its B. P. equivalent, liquor picis carbonis, and then apply compresses, under oiled silk, of glycerinum plumbi subacetatis, one to eight distilled water. The painting is done twice a day; the compresses are kept on night and day.

*Thymol*, *Naphthol*  $\beta$ , etc., are remedies which may be used in the same class of cases as those in which tar would be suitable, but are much more cleanly and pleasant. Thymol was introduced by myself for this purpose some years ago. It is perfectly clean, being a white crystalline substance, and its odor, that of thyme, is not unpleasant; it is especially useful, therefore, for eruptions on the face. It may be used from gr. 15 to 3iij to the 3j as an ointment or as a lotion (Lotions, F. 14, a).

Naphthol was introduced by Kaposi as a remedy; it is of about the same efficacy as thymol, may be used of the same strength, and in similar cases. It is equally clean, and when made into an ointment is almost odorless, and is thus the most pleasant remedy we possess for psoriasis (F., Parasiticides, No. 8). If absorbed, it is converted into naphthol sulphate, and produces cloudy urine. Although decidedly useful, I have not so high an opinion of it as Kaposi appears to entertain.

The *nails* require special treatment. Arsenic has the most effect of internal remedies, it appears to pick out the diseased tissue; locally, if the lesion is distal only, remove the morbid epithelium beneath the nail, and scrape the nail blade with broken glass. Then push beneath the nail an ointment of acid. salicyl. gr. 10 and upwards, ung. zinc. oleat. 3j. If the disease commenced proximally, push the ointment as far beneath the nail fold as possible, and wrap up the finger-ends in the ointment; pits and other early developments should be scraped out. Sabouraud's treatment for onychomycosis (which see) is also useful in some cases.

The watering-places that are most beneficial in psoriasis are those which contain arsenic, such as Royat, La Bourboule, and Levico, named in ascending order of the quantity of arsenic, and are proportionately efficacious internally.

Sulphur waters, such as Harrogate and Strathpeffer in Britain, Aix-la-Chapelle, Schinznach, and Barèges, etc., on the Continent. They require a good deal of judgment in adapting





**PSORIASIS NIGRA. THE ERUPTION WAS OF A VERY DARK BROWNISH-RED TINT,  
AND WAS DEVELOPING INTO PITYRIASIS RUBRA.**

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the strength of the baths to the character of the eruption, or it may be aggravated instead of relieved.

Thermal baths, in which the prolonged immersion in warm weak alkaline water is the main *modus operandi*. Such treatment may be found at Bath, Buxton, Leuk, Aix-les-Bains, and many other places at home and abroad.

In all these places success in removal of the eruption can be obtained in judicious hands, but the duration of freedom from eruption is not longer than that produced by other treatment, except what may be gained by the rest and diversion, change of climate and scene, the regular diet and living. These points, together with the elevation and other climatic considerations, must be borne in mind in selecting a spa, and some aid in this direction is afforded in the Appendix.

### PITYRIASIS RUBRA.\*

*Synonyms.*—Dermatitis exfoliativa (Wilson); Pityriasis rubra aigu (Devergie); Erythrodermie exfoliante (Besnier).

*Definition.*—Pityriasis rubra is an inflammatory disease, involving the whole surface of the body, characterized by deep redness with abundant flaky desquamation.

This disease is one of the few forms of dermatitis which become universal. My statistics give the rate of three cases in two thousand. It may be primary or follow some other form of dermatitis, be acute, chronic, or relapsing; but the general aspect of the skin varies but little under the different circumstances. Some authors are inclined to regard it as a form of eczema, but the majority of cases are much more like a very

\* *Literature.*—Author's Atlas, Plate XXIX.; Buchanan Baxter, "General Exfoliative Dermatitis," *Brit. Med. Jour.* (1879), vol. ii. pp. 79, 119; Hutchinson, "Rare Diseases of the Skin" (1879), p. 241; Pye-Smith, "Superficial Dermatitis," *Guy's Hosp. Rep.* (1881); vol. xxv. p. 27; Percheron, "Étude sur la dermatite exfoliatrice" (Paris, 1875). The works of E. Wilson, Hebra, Devergie, Bazin, Hardy, may all be consulted with advantage. Brocq's monograph, "Étude critique et clinique sur la dermatite exfoliatrice généralisée" (Paris, 1882), or the analysis of it in *Ann. de Derm. et de Syph.* (1883), vol. iv. p. 90. Discussion at the Paris International Congress, 1889, and Derm. Soc. Lond., *Brit. Jour. Derm.*, vol. x. (1898), p. 437.

acute psoriasis, and it is in its symptoms and course a separate affection.

Many restrict the term pityriasis rubra to Hebra's type, and include all the rest under dermatitis exfoliativa, but in my opinion they are all branches of the same trunk.

There are two \* leading types of the disease—the large scale, or Wilson type, which may be primary or secondary; the small scale, or Hebra type. There are, however, connecting links between these types. The "Ritter" type of the new-born is perhaps a third variety.

*Symptoms.*—In a typical case, often without definite symptoms, except perhaps a feeling of debility and depression, the eruption appears suddenly, either as a diffused redness, rapidly spreading all over the body, and soon becoming scaly, or in the form of very slightly raised, well-defined red patches, which soon become scaly.

They appear symmetrically in varying positions, the chest and limbs being perhaps the most common when there has been no previous eruption, but it may begin anywhere. The disease is, however, seldom seen at this stage.

The eruption spreads rapidly at the edge of the lesions, and others forming, the whole body may become involved in from two days to two or three weeks, so that there is absolutely no sound skin anywhere. The nail substance may not be involved, but it is often separated from its bed, partially or entirely, by the accumulation of epithelium beneath, and is then thrown off. The hair also is shed partially or completely. The entire surface is of an intense bright red, soon assuming a deeper hue, but the color is partially concealed by the scales; the redness is uniform, and there are none † of the red puncta, which can be seen with a lens in psoriasis, when the scales are removed. Everywhere the surface is covered with thin, papery scales,

\* Brocq considers desquamative scarlatiniform erythema a benign primary form of it, and divides the rest into general exfoliative dermatitis—(a) subacute, (b) chronic, (c) infantile; and pityriasis rubra—(a) subacute and benign, (b) chronic malignant (type, Hebra), and (c) chronic benign, the last variety being put forward tentatively. Although no doubt cases of each type are to be found, in my opinion the subdivision is too elaborate and founded on too small a number of cases to be of practical value.

† The case described in Hillier's handbook is an exception to this.

small upon the face, but on the body very large, free at all their edges, except one, perhaps, and somewhat imbricated, like scale armor, but never adherent into crusts. The scales are easily rubbed off, but are rapidly renewed, so that two or three pints or more may be collected in the twenty-four hours. On the palms and soles the skin is detached *en masse* or in very large pieces, but the redness does not show after the first exfoliation. With all this intense hyperemia only slightly appreciable infiltration of the skin is usually present, and the surface is dry where the scales are detached or easily detachable, but slightly moist underneath, where they are more closely adherent.

The sweat secretion is not always interfered with, and is sometimes profuse in parts like the axillæ. There are no rhagades usually, the cuticle alone splitting, and there is little or no itching, but there is a feeling of burning, tingling, stiffness, and tenderness. Once the disease is completely established, the appearance of the skin may undergo but little change for an indefinite period, but in cases that have lasted for a long time there may be either thickening with the so-called lichenification from infiltration in some parts, or thinning in others, the redness gets more brownish in hue, and the scales smaller. The tongue appears preternaturally red, and there is, no doubt, exfoliation here; but it has been recognized in only a few cases, probably on account of the moisture of the parts removing the epithelium as fast as it is loosened; nevertheless, transitory white patches have been observed on the tongue and oral mucous membranes.

*Variations.*—In a few cases the itching is severe, and is sometimes the first symptom to attract attention. Attacks limited to certain regions occur, which must be included under this term, though contrary to the definition and to the first ideas of the disease; these may ultimately develop into universal attacks; or, on the other hand, the first attack may be the most severe, and future attacks diminish in severity. Devergie describes cases with fluid exudation in considerable amount, but it does not stain linen, and may not even stiffen it; in the latter case it has often been compared to sweat, and possibly may consist largely, if not entirely, of that secretion, but in advanced cases the sweat glands are destroyed. The cases secondary to eczema are often of a moister type than the primary cases and

those secondary to psoriasis. Rhagades, though not common, may occur, and in this sort of case the eyelids may be drawn down, owing to the stiffness of the skin.

From time to time cases have been published under various names, signifying their most prominent features of inflammatory redness and persistent desquamation, generally universal, but occasionally partial, as in Bulkley's case, where the hands and feet only were invaded; the term *dermatitis exfoliativa* covers them all pretty well, but while they are generally acutely hyperemic only, they are sometimes vesicular or imperfectly bullous. Bullæ may, however, form in typical cases, and in one of mine pemphigus had been diagnosed. Hardaway had a case in which there were successive crops of a dozen at a time for a week on the thighs, abdomen, and buttock. Baxter, in his valuable paper, has noticed nearly all the cases up to date, and while they do not exactly fit in with the typical cases of *P. rubra*, all but the bullous cases approach that disease most nearly, and it is probable that we must widen our conception of it. On the other hand, Duhring is inclined to regard them as belonging to a class of their own.

Pigmentation, sometimes very deep, may take the place of the ordinary redness. This has been observed by Handford, Brocq, and in three cases by myself. In one of mine it was not true pigmentation, but due to a venous capillary congestion, and it was almost completely removed for a moment by pressure. The body was mahogany-colored, the thighs deep slate, the legs not quite so dark. Britton also reported a case at the Leeds Medico-Chirurgical Society. In another, a woman *æt.* twenty-two, there was a universal slate color which supervened six months after the onset, and before arsenic was given. Both in this and Handford's case bullæ had appeared in small numbers from time to time. The converse appears to be a case of *S. Mackenzie*, in which there was exfoliation, but the skin remained white. Du Castel had a case in which *striae atrophicæ* followed a severe attack in a young girl.

Another complication observed in one of my cases, a lady *æt.* thirty-five, was the formation of numerous cold abscesses. They formed rapidly and generally without pain, sometimes small and superficial, at others large and deeper, and contained a quantity of thick yellowish-white pus. They healed up

readily, but the succession lasted for many months. The case, which had been doing well, died with cerebral symptoms suggesting the possibility of a cerebral abscess. Pernet has also had a fatal case in an old man with similar abscesses.

I am quite satisfied that cases of true *P. rubra* may be partial. I have also seen, in some cases, the scales quite small and powdery where the hyperemia has been moderate, and in others rather free moisture in some parts, while the rest of the body presented typical characters.

The disease may begin with sudden swelling and redness, indistinguishable from erysipelas, though undoubted erysipelas has preceded an attack. This kind of swelling rapidly subsides, as a rule, but it may be more permanent, though to a less extent; brawny infiltration is also recorded; and limited thickening of the cutis in cases of long standing is not uncommon. The nails may be preternaturally softened and thinned; or on the other hand thickened, roughened, and furrowed transversely; they may also be yellow and translucent or opaque. In Wallace Beatty's case there was superficial ulceration in a kind of network. In a case of Hutchinson's, in which the hair was thrown off, when it grew again it was snow-white and remained so, but the eyebrows and lashes were pigmented.

Vidal and Kaposi have each had a case where small patches of spontaneous gangrene of the skin were observed on the shoulders, sacrum, thighs, etc. Stephen Mackenzie had a case where there was general pityriasis, but no redness; as a sequel, pityriasis rubra pilaris has been recorded by Devergie and Tilbury Fox.

*Pemphigus foliaceus* has supervened in a few instances; Pringle, among others, relates an example; Liddell also has had a case.

*General Symptoms.*—In the majority of instances it has occurred in previously healthy subjects, and even where it has not been so, in many cases, the general symptoms have been slight and indefinite, a feeling of debility, depression, and chilliness being the most frequent. On the other hand, severe rigors and considerable fever, reaching to 103° F.\* and even

\*Gairdner's case, and a man in U. C. H. In this case, after malaise and slight chilliness, a cold bath excited a severe rigor, and the eruption came out on the chest and legs the same night.

104°\* as a night temperature, with a morning remission, have been noticed in a few cases in which the temperature has been taken regularly; this fever is usually of short duration, and occurs only in the first few days, subsequently falling to normal or subnormal; but recurrences of fever, especially in relation to relapses, may be kept up for months. How severe the symptoms may be the following case exemplifies. A man, æt. forty, came under my care who, in the course of seventeen years, had thirteen attacks, of which nine were partial and apparently psoriasis, the four last universal and true *P. rubra*. The first came on one year after rheumatic fever, which left no cardiac affection. In most of the attacks he felt languid and out of sorts; in the last, after having had patches on the extensor aspect of the limbs, just like the developed disease, for four months, it became universal in two days, with great prostration, anorexia, and slight diarrhea, with subsequent constipation. He was doing well, the eruption having cleared off the face and chest, when a return of the weakness and depression was rather suddenly manifested; the throat was sore, and the temperature, which had not exceeded 100° for ten days, rose to 102° F. Four days later an attack of sudden swelling and redness, indistinguishable from erysipelas of the face, occurred, followed by transitory improvement in the general symptoms. Then the pityriasis again became universal; nightly recurrent rigors, once amounting to a slight convulsion, set in; the temperature reached 104° F. at night, falling to 100° F. during the day; there was moderate albuminuria (1-10 albumin the last day); considerable emaciation; typhoid condition; pulmonary edema, and a temperature of 106° F. an hour before death, which occurred fourteen days from the first change for the worse, and nine weeks from the disease first becoming general. Post mortem there was pulmonary edema, a large soft spleen, and a fatty liver, but nothing to account for the result.

Other cases with the same symptoms, with the addition of diarrhea,† have been previously recorded.

Insanity‡ has developed in the course of the disease. One of my cases was associated with mania, and the speech was

\* Case of Hessy, U. C. H., males.

† Mary T., U. C. H., females.

‡ See Discussion on *Pit. Rub.*, *Brit. Jour. Derm.*, *loc. cit.*

slurred and almost unintelligible, like a general paralytic. The patient, a middle-aged lady, recovered in mind and body. A case of Pringle's became acutely maniacal and died, and another "went mad."

Krafting \* records a case in which there was a development of innumerable fusiform celled sarcomata from a pin's head to a pea in size. They disappeared spontaneously.

In cases of several years' standing anemia, gradual emaciation, and exhaustion may lead to death; or an intercurrent malady, such as phthisis, pneumonia, or bronchitis, may usher in the end.

Instead of beginning in previously healthy subjects, in several cases there has been a history of acute rheumatism, with or without consequent heart disease, and in five cases, at least, erysipelas or an erysipelas-like condition, has immediately preceded the outbreak of pityriasis rubra, or an exacerbation of it. In most of these, however, erysipelas was probably only simulated.

General enlargement of the lymphatic glands is not unusual.

Defects of nutrition of the skin of long standing have existed in a few cases.

Many have been the subjects of psoriasis, eczema, or seborrheic eczema before or at the time of the outbreak. In one † the head and neck were eczematous, and the trunk like P. rubra; in another ‡ psoriasis existed at the time of the outbreak and lasted six weeks, and as the P. rubra got better the psoriasis resumed its normal course. An extraordinary case, under my own care, was that of a young woman § with general scaly folliculitis, who during treatment with subcutaneous injection of arsenic developed rheumatic fever (her second attack) with peri- and endo-carditis, double iritis, and multiple arthritis. The skin became acutely inflamed, the whole of the original rash shelled off in large patches, the skin beneath was smooth and shiny, and then scaly, and P. rubra developed. The woman recovered after being almost at death's door, and

\* *Annales de Derm.*, vol. vi (1895), p. 1098.

† S. Mackenzie, *Lancet*.

‡ Guibout, *Union Médicale*.

§ Her original eruption is depicted in Plate XXVI. of my Atlas, with the full history of her case.

subsequently there was a slight return of the primary eruption. It is the rule in these secondary cases that the disease develops beneath, as it were, the original lesion, and as the pityriasis rubra involutes, the primary eruption resumes its course more or less completely. Baxter had a case developing on "lichen ruber." He also had a case following pityriasis capitis and erythema papulatum, and another in a child of six months developing from eczema of the head and face. In my experience it is far more frequent after psoriasis \* than any other form of dermatitis. It is noteworthy that nearly all these are forms of dermatitis which are liable to become universal, or nearly so, while still preserving their usual characters; but while some relationship is suggested, we must not conclude at once that the affinity is pathological, as it may be only etiological. Brocq † quotes a case in Vidal's clinic in which a severe attack of two months' duration, with intense fever, was excited by the too vigorous application of chrysarobin. I have also seen a typical case of P. rubra following the too vigorous inunction of ung. hydrarg., ‡ and one from the external use of arnica. These artificial cases, and those secondary to psoriasis and other forms of dermatitis, Brocq wishes to separate on the ground that they are not universal, nor of long duration; but this, while true of some cases, is not so of others. I have repeatedly seen the most severe, absolutely universal, and fatal cases in this class of secondary P. rubra, and, except etiological, in every way similar to the other less common primitive cases, and it appears to me to be illogical to separate them.

There is also a premycotic form, in which clinically the eruption is indistinguishable from ordinary P. rubra until the tumors appear.

*The Small Scale, or Hebra Type, of Pityriasis Rubra.*—Typical primary cases of this kind are very rare, very slow in their development and course, and almost invariably fatal, but all small scale cases are not of this type. Thus Jessie R., æt. forty-

\* S. Mackenzie found it most frequent after eczema, *Brit. Jour. Derm.*, vol. i. (1889), p. 285; analysis of twenty-one cases.

† *Amer. Jour. Cut. Med.*, vol. iv. (1886), p. 25.

‡ In 1804, when mercurial inunction was extensively used, Moriarty of Dublin published a *brochure* with a series of cases which he called mercurial lepra, but which were really exfoliative dermatitis.

seven, came to me with dermatitis extending over almost the whole body; there was moderate hyperemia with dry powdery scalliness, the limbs were brighter red than the trunk. She recovered in three months from the onset.

In a typical case the symptoms are redness, gradually increasing in extent and intensity, of a venous tint on the lower limbs, followed by the development of comparatively fine scales constantly shed and renewed. The general health is but little disturbed at first, but eventually there is increasing weakness, marasmus, and death by exhaustion. The skin towards the end loses its red color and becomes of a yellowish tint; it atrophies and shrinks, this thinning being a marked and diagnostic feature. Jadassohn,\* who has written an able and exhaustive paper on Hebra's form, while contending that it is an absolutely definite and separate disease, admits that to Hebra's description must be added, chiefly on the authority of Kaposi and H. Hebra, the following symptoms: The desquamation, instead of being fine, may be large and free; there may be actual thickening and edema of the skin instead of thinning; itching may be a notable feature; slight moisture may be present; ulceration may not be absolutely confined to bony points of pressure; enlarged lymphatic glands; and, finally, that the prognosis is not altogether unfavorable. These additional symptoms are the connecting links to the other forms. In W. Peter's case † the lymphatic glands were enormous, and the spleen was enlarged, but the blood was normal. In Elliot's case \* the first attack was only an erythrodermia, and he only suspected pityriasis rubra of Hebra. Two years later another attack was typical of the disease with enlarged glands; subsequently the man died with general tuberculosis.

*Course and Termination.*—The course of pityriasis rubra is very variable. It is most common for it to come on suddenly, become complete in a few days, and then continue for days or months, or years perhaps, or only end with life itself. It may

\* "Ueber die Pityriasis rubra." (Hebra), by J. Jadassohn, *Archiv f. Derm.*, 1892. Full critical abs. by Doyon, *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 413. *Loc. cit.*, vol. lvii. (1901), p. 33. Kopytowski and Wielowieski give the pathology and anatomy.

† *Dermat. Zeitschrift*, vol. i., part iv.

‡ *Amer. Jour. Cut. Dis.*, vol. xv. (1899), p. 35.

take several months to involve the entire surface; or in some cases, after having been confined to a few regions for some time, it slowly, or without apparent reason, rapidly becomes general. Many acute attacks get well in a few weeks or months, and even after years they may recover, sometimes spontaneously, and others, apparently, as the result of treatment. The disease predisposes to future attacks, some patients having annual recurrences, others going on for long irregular intervals; and even when cases are apparently getting well, a sudden relapse is not at all infrequent.

The unfavorable cases may go on to death in a few weeks or months with the symptoms already described, or they may drag on for many years, and die of gradual exhaustion, or of some intercurrent disease. When the case is getting well there is a diminution in the intensity of the redness, the scales are less quickly reformed, then clear places appear, increase in size, and gradually the whole skin resumes its normal appearance, leaving the patient more sensitive to cold than before, which may to some extent explain his liability to future attacks.

*Children.*—The disease is very rare in children, and when it does occur runs a more acute course, is generally attended with severe constitutional symptoms, and is more likely to lead to death. The skin lesions have the same characters as in adult cases. In most cases it has been preceded by some other form of dermatitis. Some of these cases of general exfoliation are probably due to congenital syphilis, as in the following case of a boy, æt. six weeks, who had been ill a fortnight. The whole of the body surface, and the oral mucous membrane, were of a deep red color, and the whole skin was desquamating freely, but not in large flakes, otherwise it looked like pityriasis rubra; the eruption began on the buttocks, but there were no other signs of congenital syphilis, and the family history was doubtful. Non-specific treatment was tried for more than a month without benefit; it was then put on hyd. c. cret. gr. i three times a day, and was well in three weeks. Dr. Kirk White \* records a case in a child twelve days old, coming on two days after exposure to carbonic oxid and acid poisoning, but the child got well in a fortnight.

\* *Amer. Jour. Cut. Dis.*, vol. xiii. (1895), p. 341. He reports it as a case of the Ritter form.

Under the name of **Dermatitis Exfoliativa Neonatorum**,\* Ritter has described an eruption which he observed in the Foundling Asylum at Prague, where nearly three hundred cases occurred in ten years. It begins in the first or second week of life, and occasionally as late as the fifth, usually in the lower part of the face first, but it may begin anywhere with patchy or diffuse, soon becoming universal, redness and scaling, which may be branny or in laminæ, like pityriasis rubra, and either dry or with effusion beneath the epidermis; sometimes it presents vesicles or flaccid bullæ like pemphigus foliaceus, and then there are crusts as well as scales, with rhagades on the mouth, anus, etc.; there is a total absence of fever or other general symptoms. About fifty per cent. die of marasmus and loss of heat, with or without diarrhea; in those who recover the skin becomes pale and the desquamation gradually ceases, the disease running its course in a week or ten days. Mild relapses sometimes occur, or there may be septic sequelæ—boils, abscesses, or even gangrene. Ritter regarded it as of septic origin; Behrend thought it was pemphigus foliaceus; while Kaposi, who had also seen cases in lying-in and foundling hospitals, while admitting its clinical resemblance to pemphigus foliaceus, regarded it as an aggravation of the physiological exfoliation of the new-born. Riehl found a long thin mycelial fungus, which he thought to be pathogenic, but a schizomycetic toxin is a more probable cause.

Cases have also been described by Billard, von Baer, Caspary, and others, but none have been recorded in this country.† Morton of New York and Das of Calcutta have also reported cases in 1895 and 1899 respectively, and Spencer reported an outbreak in a lying-in hospital in Sydney which he regarded as a separate disease, and called it after his own name; but while the initial lesion varied as erythema, macule, papule, vesicle, pustule, or bulla, it developed into widespread exfoliation, and behaved generally like Ritter's disease.

*Etiology. Age.*—There appears to be no limit for pityriasis rubra at either end of the scale as regards age. I have seen one well-marked primary case in a child of two months, and

\* *Viertelj. f. Derm. u. Syph.*, Heft i., 1879.

† G. Elliot of New York reports two cases with general review of the subject in *Amer. Jour. of the Med. Sciences*, January, 1888.

one of nearly eighty years with recovery; but the majority occur between forty and sixty years of age. However young the patient may be, it is very unlikely to be of congenital origin.\*

*Sex.*—Both sexes are liable, but there is a decided preponderance among males, in the proportion of three to two, or even higher. The only other predisposing causes known are various forms of extensive dermatitis, such as eczema, psoriasis, lichen acuminatus or dermatitis due to mercury, chrysarobin, arnica, etc. I have shown in a paper read at the Paris Dermatological Congress of 1889,† that there is a close relationship between rheumatism, especially the acute form, and gout and P. rubra, eleven out of eighteen cases having had this association; and Jadassohn points out the frequency of tuberculosis in some form, in the Hebra type of cases. Out of eighteen cases, in eight tuberculosis could be proved, in one or two more it was doubtful, and in the rest no inquiry had been made as to the point.

Of exciting causes, sudden chills have so immediately preceded the onset in some cases that they may fairly be inferred to have excited the attack. An alcoholic debauch is recorded in two cases. Both the exciting and predisposing causes, however, leave a large number of cases wholly unaccounted for; and since the conditions mentioned, both as exciting and predisposing causes, are of common occurrence, while pityriasis rubra is very rare, there must be some underlying factor at which we cannot even guess with our present knowledge.

*Pathology.*—Histological examination shows that the disease is a dermatitis, quite superficial at first, but when it has lasted some time the whole depth of the skin is involved, and eventually new connective tissue is developed, which subsequently undergoes cicatricial-like contraction, with abundant pigmen-

\* Rasch describes the case of a woman, æt. thirty-two, who had suffered from universal redness and exfoliation from birth; a brother and sister had suffered in the same way, but had died at three and a half and nine years respectively. Histologically the changes were those of ichthyosis, and he called it therefore "ichthyosis rubra." *Derm. Zeitsch.*, vol. viii. p. 669. *Abs. Brit. Jour. Derm.*, vol. xiv. (1902), p. 110. Sangster had a somewhat similar case, but the ground color was normal; he called it "congenital exfoliation of the skin."

† *Transactions*, 1890, p. 68.

tation, hyperplasia of the elastic fiber bundles, and obliteration of the skin appendages.

The anatomy, however, throws no light upon the original pathological factor; whether, as Pye-Smith thinks, it is a primary dermatitis, or, as many think, it is consequent on some defect in the nervous system, there are too few facts to allow of anything more than conjecture. Assuming that it is of nervous origin, it has still to be determined whether it is of peripheral or of central origin. If central, however, the disease must be placed high up in connection with the trophic centers.

Myelitis, with a *P. rubra* condition of the skin, has been recorded by Jamieson, and it is of value as evidence in this direction. Quinquaud and Lancereaux also describe both peripheral and central nerve changes of inflammatory character, in connection with the disease. On the other hand, the spinal cord, pons, and medulla in two of my cases were carefully examined by Dr. Frederick Mott, and no marked changes could be made out. In the light of recent pathology it is probable that the nervous system is only indirectly at fault, the primary cause being a bacillus or its toxin acting on the nervous system. Haushalter found a microbe with white culture resembling, but different from, *staphylococcus albus*, but its pathogenic character was not proved. It is also open to discussion as to whether the toxin is formed in the skin or from within the body; in either case it would appear that it is an auto-toxin which the patient manufactures to his own detriment for an indefinite period.

**Anatomy.**—Skin removed from the dead body has been examined by several investigators. As I believe I was the first to examine skin from the living body, where the disease had existed only two weeks, I will give the results.

The skin was taken from the left side of the trunk. The process was entirely confined to the part of the skin above the longitudinal vessels of the superficial plexus, with comparatively little change in the lower half of this part. The sweat glands and other structures below the plexus were, therefore, quite normal.

In the horny layer the upper two-thirds were split off from the lower third, which was closely adherent to the rete; the individual layers were not at all separated from each other, as in psoriasis (see Fig. 23). The rete was decidedly thinned over the papillæ, sent down long narrow processes between the papillæ, and thus produced a great apparent enlargement of them. The individual cells of the rete were unaltered,

and no leukocytes were observed among them. The papillæ were enlarged transversely, as well as longitudinally; both they and the immediately subjacent corium were infiltrated with leukocytes, but only in moderate numbers, and below this they became quite sparse; there were none below the superficial horizontal vessels. The fibers of the papillæ and upper part of the corium were separated and stretched, inferably by effusion of serum. The cell infiltration was most abundant round the papillary vessels and the sweat ducts, where they traversed

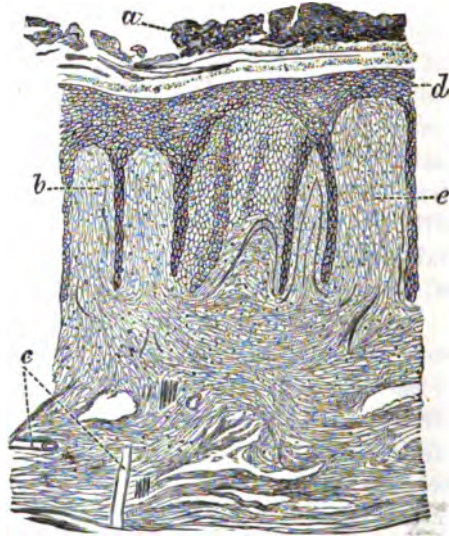


Fig. 23.—Pityriasis rubra, two weeks' duration, side of trunk.

*a*, scales; *d*, rete, thinned above, but with enormously elongated inter-papillary processes; *e*, papilla enlarged vertically and transversely; *b*, papillæ and upper part of corium infiltrated with leukocytes (the infiltration was much more abundant than is depicted in the wood-cut); *c*, dilated blood-vessels.

the affected part of the corium; the lumen, however, was unobstructed here, but occluded in the rete.

In Hans Hebra's case of his father's type, of thirteen months' duration, the cell infiltration was present throughout the corium, and very abundant round the appendages of the skin, being present between the acini of the sweat glands. In a case of five years' standing there were leukocytes even in the fat, but "the general impression given was that of a scar with epidermis over it"

The papillæ, sweat and sebaceous glands were atrophied or absent. There were large coils of elastic tissue, and yellow pigment infiltrated the lowest part of the rete and was scattered in masses throughout the corium.

Jadassohn found in Hebra's form slight infiltration of round cells in foci in the upper portion of the corium; increase of the connective tissue nuclei; large numbers of giant cells, especially in the papillary body and round the sweat glands; great accumulation of yellow and brown pigment in the corium; extreme proliferation of the cells of the rete and invasion of immigrant cells; thinning of the stratum granulosum and raising up of the horny layer into lamellæ.

Petrini and Babes found degeneration of the collagen substance of the papillæ and vessel walls and thrombi in the vessels. Jordansky analyzed the scales and found the nitrogen in them was about normal (fifteen per cent.). The patient shed from 4 to 8 grams of scales a day, averaging 5½. See Unna's "Histopathology," p. 271, for further details on the Hebra type, and pp. 274-276 for histology of the other forms.

*Diagnosis.*—Its sudden onset and rapid involvement of the entire surface; the intense redness, without exudation of fluid or thickening; the copious exfoliation of thin, papery scales; and the tendency, if untreated, to become chronic and lead to a fatal issue, are its most characteristic features.

It may have to be distinguished from psoriasis, eczema, pemphigus foliaceus, and lichen acuminatus.

It differs from *psoriasis* in its being absolutely universal, which psoriasis \* never is in my experience; the rapidity with which it spreads over the body; the absence of thickening, and the scales never adhering to each other in silvery crusts; the scales being large, thin, papery, and easily detachable; and the absence of red puncta when the scales are detached. Some of the more highly inflamed cases of psoriasis approach the pityriasis rubra type more closely than has just been described, but they are not universal, and retain many of the psoriasis characters.

It differs from *eczema* in the first four particulars. It is never in yellow crusts; there is seldom exudation, or, if present, it is usually scanty and partial; but, if abundant, does not stain, and seldom stiffens, linen; and itching is absent, or at least moderate. Neither in eczema nor psoriasis are the general symptoms so severe.

It presents many points of resemblance to *pemphigus foliaceus*, but it differs from it in that there are no flaccid bullæ, with

\* Universal psoriasis of some authors is applied to cases of pityriasis rubra which have developed from psoriasis. I have never seen a case of psoriasis retain its characters and yet be absolutely universal.

their attendant disagreeably smelling discharge; and it is, as a rule, more amenable to treatment. Pemphigus foliaceus is most common in women, *P. rubra* in men. It must be borne in mind that the bullæ in pemphigus foliaceus rupture so quickly that they are easily overlooked, and that in rare instances pemphigus foliaceus has developed on a pityriasis rubra.

It differs from *lichen acuminatus*, which also is rarely universal, in its rapid spread, the absence of thickening, the abundance and character of its scales, the total absence of papules, its being less influenced by arsenic, and its not beginning with the characteristic papules of lichen acuminatus.

The large and small scale types can be distinguished from the cases of *general desquamation* following erythematous or other eruptions, since, when the scales are once thrown off, there is no renewal of them.

*Prognosis.*—This is always serious, as it is impossible to predict what course the disease will take, and even when it appears to be doing well sudden relapses may upset previous calculations; still, instead of being uniformly fatal, as at first believed, about half the recorded cases have recovered, some of them from several attacks. Personally, I should say that this mortality is far too high even for universal cases. The partial attacks are, of course, more favorable, but are liable to become universal at any time. The disease is more fatal in children than in adults, and runs a quicker course for good or ill.

In the Hebra type the prognosis is bad as a rule, but it is not so uniformly fatal as Hebra himself thought it.

*Treatment.*—This must be both external and internal. *External treatment* is of great use both in relieving discomfort and diminishing the congestion. Oily applications are usually the best; I have seen very good results from wrapping the patient up in bandages soaked in linimentum calaminæ, and also from spreading a thick layer of Lassar's paste, omitting the salicylic acid, over the body, and covering with butter cloth. The lactate of lead liniment and the glycerin of the subacetate of lead have also proved useful (F. Lin. 2, Lot. 39 and 40); but if employed great care must be exercised to prevent the patient getting chilled during their application and removal.

*Internally.*—After correcting, if present, any errors of the digestive system, quinine in full doses is the best treatment in





PITYRIASIS ROSEA.

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acute febrile cases. In chronic cases arsenic is strongly recommended, but it often fails conspicuously, and is, I believe, very unreliable. When the patient is losing flesh, cod-liver oil, iron, and a highly nutritious but easily assimilable diet, and sometimes the liberal use of stimulants, are required. Diuretics are strongly recommended by Dr. Tilbury Fox. The course that I have found very successful is as follows: The whole of the body is enveloped in bandages soaked in calamin liniment, which should be slightly warmed in cold weather; the bowels are cleared out if necessary, and then pot. bicarb. gr. 20 is taken every four hours, with acidi citrici gr. 12, and quinæ sulph. gr. 3 to gr. 5 during effervescence. The patient is fed up as much as possible, but stimulants are withheld, as a rule, unless there are signs of vital depression. In all cases rest in bed is absolutely enjoined, and they should be uncovered as little as possible, as they are extremely sensitive to the slightest chill. I consider it highly dangerous for patients with even partial attacks to go about, and indeed treatment is generally unsuccessful until the patient lies up.

Improvement very often does not set in for some weeks, but the treatment should not be changed too hastily on that account, and the mind of the patient should be encouraged to believe that everything possible is being done.

Arsenic may be given towards the end of the attack, if some part of the eruption is slower in going away than the rest, and in cases of long duration; but I never find it advantageous in the earlier stages and very rarely give it at all.

### PITYRIASIS ROSEA.\*

*Synonyms.*—Pityriasis maculata et circinata; Herpes tonsurans maculosus (Hebra).

*Definition.*—An acute, widely spread exanthematic eruption characterized by pale red, slightly scaly patches or circles.

This is one of the less common eruptions, occurring about once in 250 cases in my experience. It was first described by

\* *Literature.*—Author's Atlas, Plate XXX. Owing to the delicate characters of the eruption, it is not possible to represent it quite satisfactorily.

Gibert,\* and subsequently by Bazin, Hardy, Horand, and other French writers,† and more recently by Duhring‡ and Behrend.§

*Symptoms.*—Slight febrile and other symptoms of general disturbance occasionally precede and accompany an acute widespread outbreak of the eruption, and generally there is slight enlargement of the post-sterno-mastoid and submaxillary glands, and in one of my cases of two months' duration the axillary and inguinal glands. Sometimes there is also congestion of the fauces, but in a slowly developing eruption of limited extent general symptoms would be absent. Gilchrist observed in the urine a high sp. gr. and urates in several cases, probably of the febrile type.

As Brocq states, a single primitive patch, usually situated somewhere on the trunk, precedes the general outbreak for a week or ten days in most and probably all cases, though it is not always traceable. Its larger size, and being sometimes the only circinate patch, may indicate it in some cases. The eruption varies in its extent, sometimes being confined to one or two regions, but is generally extensive, and it may be nearly universal. It commonly commences upon the abdomen, but may begin on the upper part of the chest, the side of the neck, and occasionally on the face or arm. Thence it spreads with a varying extent and rapidity over a large area, which may include the whole trunk, neck, and limbs in from two to three weeks, but is thickest on the abdomen and buttocks, and is usually absent or sparse below the elbows and knees, and on the face.

The eruption is scarcely raised above the surface of the healthy skin, and occurs in two forms, the maculate and the circinate.

*P. maculata* is in small, roundish, oval, or irregular, pale red patches, with ill-defined borders, varying in size from a mere dot

\* Gibert, "*Traité pratique des maladies de la peau*" (Paris, 1860), p. 402.

† Vidal, *Ann. de Derm. et de Syph.*, January, 1882, and the other French writers alluded to.

‡ Duhring, *American Journal of the Medical Sciences*, October, 1880, p. 359.

§ Behrend, *Berlin klin. Wochenschrift*, 1881, No. 38; also Colcott Fox, *Lancet*, September 20, 1884.

up to about three-quarters of an inch in diameter, and thinly covered with very fine scales. This is the form originally described as *P. rosea* by Gibert.

*P. circinata* is in oval or roundish patches, with well-defined borders, which, as the patch increases peripherally, soon become more prominent than the center, and the whole is at first finely scaly, and also pale red; but after attaining about half an inch in diameter the center begins to clear, and the larger patches are converted into rings, with pale red, scaly borders, and small fawn-colored centers; still continuing to enlarge, but rarely to more than an inch, the ring is broken and ultimately clears away, leaving only the pale fawn-colored stain. The separate patches may coalesce more or less with their neighbors, and thus irregular gyrate areas of considerable extent be formed. The individual patches vary in size, depth of redness, and amount of scaliness. Interspersed among the large patches are small spots from about the area of a measles papule upwards, and these enlarge peripherally to form the larger lesions. The gradation of the development of the whole process may be thus traced simultaneously, and the eruption may be disappearing on the trunk and still well out on the limbs. The eruption may be so abundant as at first to resemble an exanthem; in the most acute cases the initial papular elements are very abundant. There may be some attempt at arrangement in the patches being in parallel sloping lines from the center to the periphery, determined probably by the lines of fissure or the blood-vessels. There is itching at night, or whenever the patient becomes warm, usually only of moderate intensity, but occasionally severe.

The eruption gets well spontaneously, in from two weeks to two months, as a rule, but Vidal had a case which lasted six months, and I have had one even longer, and several of three or four months. Some of these long-standing cases have been kept going by the eruption having attacked one region at a time, and as that ran its course, another region was involved.

*Variations.*—A variation which materially alters the general aspect is when the papular elements for the most part remain small throughout their whole course, only a few patches or rings being interspersed. The patches also sometimes project, and are more red and scaly than usual. Hallopeau has ob-

served it limited to the lower extremities, and also that sometimes the patches project like wheals; in one of these cases of Hallopeau, the primary plaque was on the thigh two months before generalization.

*Etiology.*—One-third of the cases are in children, but it may occur at all ages, the extremes in my practice being seven months and seventy years. Sex, position, and season do not seem to have any effect. In short, we are perfectly ignorant of its etiology. Bazin regards it as arthritic. Jacquet states that dilatation of the stomach is a specially common concomitant, and Besnier seems to agree with him, but this could scarcely have any etiological significance. Twice I have seen it in two members of the same family, and Peroni records an epidemic of it, but it is not generally considered to be contagious.

Kromayer records a case of its occurrence on and limitation to the legs after putting on new stockings, but this was probably only an irritant (arsenical?) rash imitating pityriasis rosea.

*Pathology.*—Vidal ascribes it to a minute fungus, which he calls "*microsporon anomæon*"; but his description accords more with a micrococcus than a fungus, and micrococci are so generally present in scales that we must pause before we accept it as the *fons et origo mali*, unless the disease can be reproduced from a cultivation of the organism.

Its generalization a week or ten days after the appearance of a primitive patch is suggestive of an invasion of a microbe from without, followed by its multiplication and absorption into the blood stream and general distribution.

*Anatomy.*—According to Unna\* in the early stage there is a parakeratosis and loss of the granular layer with diminished renewal of the epithelium by new-formed prickle cells, as compared to a psoriasis. There is marked dilatation of the vessels of the superficial plexus with edema, and an abundance of new connective tissue cells, with two or three nuclei, beyond what the clinical appearances suggest. The leukocytes are sparse, but there are some plasma and mast-cells. All these changes are accentuated in a more advanced lesion; there are even microscopic vesicles, and he compares the process to that of flat papular seborrheic eczema, but with more edema and spindle cell multiplication, and no micrococci or other recognizable microbe in the scales.

Blaschko† considers that the most characteristic feature is an agglutination of cells in the stratum lucidum and stratum corneum, in which

\* "Histopathology," p. 268.

† *Annales*, vol. x. (1899), p. 1250.

there may be from three to five cells fused together with a common nucleus. There is mitosis even on the horny layer as well as the upper rete layers. The process begins in the derma and in the rete, the parakeratosis comes later. No micro-organisms were discovered. Meyer examined four cases and agreed generally with Blaschko, but he had found in one case in a lymphatic lacuna a series of cocci in columns, and also in the infundibula of the glands. In three cases he had found spores like Unna's flask bacilli.

Hollmann,\* who has examined lesions at different stages, found very different appearances, according to the stage. The process begins in the derma with marked vascular dilatation of the superficial plexus and perivascular cell infiltration in the upper part of the corium, the epidermic changes being slight at this stage, but subsequently the epidermis undergoes the spongioid transformation of the epithelium, similar to that found in moist forms of eczema by Unna.

*Diagnosis.*—The pale red tint, the slight scaliness and elevation, the widely spread distribution, the occurrence in flat papules, patches, or circles, and the tendency to spontaneous involution, make up the distinctive features of the disease. Vidal considers *P. rosea* is a separate disease from *P. maculata* and *circinata*, the former running a more definite course, the latter alone possessing the special organism; in this respect few agree with him, most authors regarding them as identical diseases, and attaching a secondary importance to the organism.

From *early squamous and circinate syphilids*, which it most resembles, besides the staining and concomitant symptoms of syphilis, the scaling and infiltration are much greater in the syphilid, and the eruption is of slower development and course. The presence, in some cases of *P. rosea*, of enlarged glands and congested fauces requires care and the consideration of all the symptoms taken together to avoid mistakes.

The circinate patches are somewhat like *psoriasis*, but much less elevated, much less scaly, lacking the hyperemic papillæ, and usually not at all conspicuous in the usual psoriasis positions. The circinate form may be very like *seborrhea papulosa*, but this eruption is almost limited to the middle of the chest and back, and is never on the limbs, has a papular border, and is primarily papular; moreover, it will last for years if untreated, while *P. circinata* gets well in a few months at the most, and usually in a few weeks. The large number of patches and

\*"Histopathology of Pityriasis Rosea." Hollmann, *Arch. f. Derm. u. Syph.*, vol. li. (1900), p. 229. Abs. in *Annales*, vol. i. (1900), p. 1103.

extent of distribution, the rapid development, and the absence of the trichophyton fungus distinguished it from *tinea circinata*, with which it was confused, even by Hebra.

*Prognosis.*—This is always favorable, the disease getting well spontaneously in all but a very few cases, and even in those is amenable to treatment.

*Treatment.*—Whilst most cases get well spontaneously, others do not, and no patient would be satisfied with inaction for several weeks, especially as itching is sometimes a marked symptom. Salicin internally has certainly influenced involution in my hands, fifteen grains three times a day having produced an immediate effect on a rash which had persisted for several weeks and in one case for months.

To allay the irritation the surface may be sponged with a lotion of liq. carb. deterg. and liq. plumbi subacet. āā ʒiiss to aq. rosæ ʒviiij; or calamin lotion with ℥x liq. carb. detergentis may be painted on with a shaving brush and allowed to dry. Sponging first with a watery solution of hyposulphite of soda ʒij to ʒviiij, and directly after with a solution of tartaric ʒi to ʒviiij, *i. e.*, the nascent sulphur treatment, has appeared to be of great service in my hands. S. Mackenzie advocates boric ointment.

Weak Harrogate sulphur baths would be of service if they were easily accessible.

## EPIDEMIC EXFOLIATIVE DERMATITIS.\*

*Synonym.*—Epidemic eczema; Epidemic skin disease.

In the autumn of 1891, chiefly in July and August, a remarkable epidemic eruption made its appearance in the Paddington (163 cases), the St. Marylebone (193), and the Lambeth (25) Poor Law Infirmaries. In the Hanwell Lunatic Asylum also.

\* *Literature.*—A well-illustrated monograph by Savill, 1892; and in *Brit. Jour. Derm.*, vol. iv., 1892, in the February, March, and April numbers. There were also many communications on the subject in the *Lancet* and *Brit. Med. Jour.*, in vol. ii., 1891, vol. i., 1892, and vol. ii., 1894, including another article by Savill and a comprehensive leader in the *Lancet* of September 29. Also *Clinical Journal*, October 30, 1894. A Clinical Lecture by Dr. Lees. "On Histology," Echeverria. *Brit. Jour. Derm.*, vol. vii. (1895), p. 9; and *Monatsh f. Derm.*, vol. xx. Savill, "Nouvelle Iconographie de la Salpêtrière."

there were 38, in St. Mary's Hospital 4, and a few other isolated cases. A similar outbreak occurred in the Greenock Parochial Asylum in 1888.

Smaller outbreaks have occurred since, especially in 1893 in the Paddington and Fulham Infirmaries and in the Bethnal Green Workhouse (86) and the City of London Infirmary. There have also been sporadic cases. A curious group occurred at Loughton, in a family living in a cottage on a hill, under Dr. Butler Harris, who sent the most severe case to me for diagnosis. The father, mother, and children were attacked. The one I saw was a boy, *æt.* eleven, who had several relapses. Careful investigation showed that they got their milk from a cow which was watered at a pond contaminated by a neighboring cesspool. The milk supply was suspected at several of the infirmaries, and although some evidence was obtained favorable to this theory of origin, it fell very far short of being conclusive, and in one institution the disease continued to spread after the milk supply was stopped.

The disease occurred in two main types—a moist one, resembling eczema, and a dry one, indistinguishable from pityriasis rubra. Dr. Savill gave an elaborate account of the disease from the 163 cases under his care at the Paddington Infirmary; and, thanks to him and Dr. Lunn, I was able to examine a large number of cases both at Paddington and St. Marylebone. Although in two-thirds of Dr. Savill's cases there was more or less discharge, there was always free exfoliation of the epidermis, and many were typical examples of pityriasis rubra, as far as appearances are concerned, and there was a heavy mortality among the old people. A few of the attendants on the sick, a few children and young people, were attacked; but the great majority were middle-aged or old persons of both sexes, in the infirmaries for other diseases. As a rule the eruption was not preceded by any noticeable signs or symptoms, and there was no fever, except towards the end in severe and fatal cases. Among antecedent or concomitant symptoms anorexia was common; some had vomiting, some diarrhea, some both; and a few had sore throat. In nearly all whom I personally examined, except the very aged, the occipital glands and those down the neck were enlarged and sometimes tender, and occasionally the submaxillary glands were also enlarged. This enlarge-

ment could not be accounted for by the eruption in the head, as it occurred in some cases where the head was almost free. The parts most frequently first attacked were some portion of the upper limb, the face, and scalp, fifty-seven per cent. commencing in one or other of those parts, the exposed positions in fact; in only seventeen per cent. were the lower limbs first attacked, and the rest began in various positions. The first symptom was a sensation of itching, then numerous acuminate red papules appeared, irregularly grouped, and seated at the follicles. These either remained unchanged for a time, or some of them coalesced into red patches, and the eruption spread over the body, sometimes slowly, sometimes rapidly, until the whole surface was affected without any interval, with a deep red infiltration, covered with abundant flaky scales; and thus, but for the history, a typical pityriasis rubra was presented. About half were thus universal. In many vesicles formed on the papules on the second or third day, and discharged, producing a moist eczematous surface. A less frequent mode of commencement was the formation of round, well-defined, erythematous patches. In six of Savill's cases small flat papules appeared, which enlarged peripherally and formed a circular red ring, inclosing a depressed area covered with minute vesicles. While the majority were symmetrical from the first, in some a local origin could be traced, and then after some days there was generalization. A few of these of local origin were aborted by painting with collodion or iodine.

The orbits were often much affected, and then conjunctivitis was usually present. The disease in the universal cases usually ran its course in from six to eight weeks, but many had relapses, and a few had actual second attacks. In those who recovered there was very deep pigmentation of the skin, and all the nails and hair were shed in the severe cases, in one case even where no rash was observed on the scalp. In the fatal cases—thirteen per cent. in the Paddington, and five per cent. in Marylebone Infirmary—death was usually by exhaustion, preceded by subsultus tendinum, shallow respiration, and coma. Some had complications, such as pneumonia, gangrene of the feet, etc.; albuminuria was present when there was a large area of skin involved. No cause, after the most diligent search, could be assigned for the outbreak; but from the scales and

fluid from unruptured vesicles both Savill and Risien Russell isolated an organism very like staphylococcus pyogenes albus, but, unlike the latter, they were diplococci in rod-like segments, did not liquefy gelatin, and had not the specific effect on animals that staphylococcus albus has. Risien Russell could find no such organism in the blood of an ordinary pityriasis rubra case. Echeverria claims that there are some very special changes in the nuclei of the prickle cells. Treatment had little effect in shortening the course of the disease, but for the severe cases treatment on the same lines as that for pityriasis rubra would be most helpful.

### CHEILITIS EXFOLIATIVA.\*

*Deriv.*—*χείλος*, the lip.

*Synonyms.*—Exfoliative inflammation of the lips; Psoriasis labialis (Bateman); Pityriasis des lèvres (Rayer); Eczéma exfoliant des lèvres (Besnier-Doyon).

Although this rare affection was known to Bateman and Rayer, and was fully and accurately described by the latter, it has only gained attention of late years from the writings of Besnier and the other writers mentioned in the footnote. It is a rare and very rebellious disease, quite distinct from ordinary eczema of the lips, but according to Besnier is closely associated with seborrhea of the face and scalp.

It affects primarily and chiefly the lower lip, but the upper may be secondarily involved in a minor degree. It is confined for the most part to the red of the lips, but I have seen it extending slightly inwards on the mucous membrane, while the extreme outer border was free. The lip is always swollen and covered with a dry yellowish or brownish crust, which may be thin and flaky or up to half an inch thick (Galloway). Beneath the crust the lip is dry, glazed, and cracking, sometimes granu-

\* *Literature.*—Kaposi Besnier-Doyon's edition, vol. i. (1891), p. 664, note, with references. Unna. Balby's case, *Monatsh. f. prak. Derm.*, vol. xi. p. 317. Galloway, *Brit. Jour. Derm.*, vol. vii. (1895), p. 113. Jamieson, *Brit. Med. Jour.*, December 7. 1895, with colored plate. Stelwagon—"Persistent Exfoliation of the Lips," two cases, *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. xviii. (1900), p. 268.

lar and bleeding, but seldom oozing. The intensity of the inflammation and consequent crusting varies considerably, the ameliorations leading to fallacious hopes of cure always doomed to disappointment, so far no case having been really cured. Galloway's case lasted fifteen years. Besnier always found it in association with seborrhea of the face and scalp, and it was so also in Galloway's and Stelwagon's cases. In Jamieson's case seborrhea was absent, and in my own was not present on the face, and I have no note about the scalp. Still it is evidently an important factor. In my own case, a man æt. twenty-seven, the lip was irritable for a year, and much picked, therefore, before the disease began. Dyspepsia has also been present in a large proportion; age and sex are not important factors.

*Pathology.*—This is unknown. Stelwagon found various microbes, but was unable to isolate the pathogenic one. Leith examined Jamieson's case, and found such marked thickening of the prickle cell layer as to suggest to him a mild form of epithelioma, but the appearances were quite consistent with those of chronic inflammation, which is much more probable.

*Treatment.*—This has been most unsatisfactory, temporary amelioration only having been obtained. Stelwagon painted on lactic acid, at first diluted, and then full strength every six hours for four applications, and repeated it in ten days, using an ointment of ichthyol and acetanilid. Under this treatment the lips kept healed for five weeks, when the report was made. Jamieson also had previously used lactic acid with benefit, following it with salicylic wool, fastened on with flexile collodion. Besnier got the lips smoother with borax and rhatany, and then covered them with traumaticin. Any digestive troubles and seborrhea should be most carefully attended to.

## LICHEN.

*Deriv.*—λειχήν, a lichen.

The term lichen was applied by Willan and his followers to a heterogeneous collection of diseases, to some of which it still clings, with the single property in common that papules are the

conspicuous feature in some part of their course. The lichen class is now restricted, as Hebra proposed, to those diseases in which inflammatory papules, undergoing no metamorphosis during their whole course, constitute the main feature of the disease. Under this definition come:

*L. planus* (Wilson).

*L. variegatus*.

*L. ruber acuminatus* (Kaposi) seu *Pityriasis rubra pilaris* (Devergie).

*L. scrofulosus*.

*L. pilaris* seu *spinulosus*.

Before describing this group it is desirable to state briefly what it does not include, as much confusion is produced by the loose way in which the term has been, and is still applied, by those who have not paid special attention to the subject. Each affection is fully described in its proper place.

Acute **L. Simplex** is still regarded by some authors as a definite disease. It is a follicular hyperemia, and may involve the hair, sebaceous, or sweat follicles. Chronic *L. simplex* (Vidal) is regarded by most French authors as a separate disease, but Besnier does not accept it, nor can I. It is the lichen circumscriptus of old authors, and Brocq and Jacquet describe it as a chronic circumscribed neurodermite, on the theory that it is a special reaction of the skin to scratching, constituting what they call primary lichenification, itching without eruption being the first symptom. The lesions are circumscribed patches chiefly occurring about the neck or groin. Many of these cases are really lichen planus, and in not a few cases, after remaining as a single thickened patch for weeks, months, or years, other lesions of lichen planus arise elsewhere. Some cases are the remains of a chronic squamous and probably seborrheic eczema. **L. agrius** is an obsolete term for an acute follicular eczema.

**L. Urticatus** is the urticaria of children, in which the wheals are succeeded by inflammatory papules, and in some cases the wheals themselves are not larger than papules. **L. pilaris** is often used instead of keratosis pilaris. Inflammatory **L. pilaris** is the equivalent of Devergie's lichen spinulosus.

**L. lividus** is hemorrhage into the hair follicle or follicular purpura. **L. tropicus**, or prickly heat, is an inflammation of the sweat apparatus, and is therefore a form of miliaria. **L. strophulosus**, "red gum," is also a sweat rash, or miliaria of young infants. **L. syphiliticus** is applied to two forms of papular syphilids, in which the lesion is at the hair follicle.

**L. Circinatus** is one of the forms of seborrheic dermatitis of the body. Seborrhea papulosa.

*Lichenification*.—This term has come into use recently through the advocacy of Brocq and Jacquet. It is applied to the thickening of the skin, which is not uncommon in chronic dry inflammations, *e. g.*, eczema, lichen planus, pityriasis rubra, etc., attended with itching and consequent scratching, whereby the natural lines of the skin are deepened and the patch, whether circumscribed or diffuse, is quadrilated, or broken up into squares, bounded by these deepened natural lines. Brocq classifies these thickenings into primary and secondary, diffuse and circumscribed, but these seem to me to be unnecessary complications of what is otherwise a useful term for a certain kind of thickening of the skin.

### LICHEN ACUMINATUS.\*

*Synonyms*.—Lichen ruber (Hebra); Pityriasis rubra pilaris (Devergie); Lichen ruber acuminatus (Kaposi).

*Definition*.—A primarily non-inflammatory (?) disease characterized by follicular, conical, or round papules with horny centers, tending to become general or even universal in distribution.

The first clearly described case was that communicated by an Englishman, Claudius Tarral, to his former master, Rayer, from a case in St. Bartholomew's Hospital in 1828.

\* *Literature*.—Colored illustrations under the above synonyms are published in Bärensprung's and Hebra's Atlas; see footnote, p. 418. Hebra's large Atlas, Plate II., Lief. iii., is not a good example. Neumann's Atlas, Plate XLI., copied by Morrow, Plate LVIII.; also Monograph, *Archiv f. Derm. u. Syph.*, vol. xxiv. (1892), p. 3, very good.

Hebra, in the first edition of his work, described the disease under the name of lichen ruber, but subsequently mixed up other diseases with it. Devergie described it independently under the title of pityriasis rubra pilaris; this name is still retained by French authors, of whom Richaud, Besnier, and Brocq may be especially mentioned, who have added much to our knowledge of the disease.

Kaposi again, under lichen ruber acuminatus, has introduced a further complication of the subject, and in the last twelve years a great controversy has arisen as to whether the three descriptions related to one or to separate affections. Owing to the paucity of cases recognized in England up to about 1890, English writers have been content to watch the fray and record the points made by the several adversaries; but in America Taylor and Robinson of New York have joined in with valuable cases in support of their contributions. We are still far from unanimity, and those who wish to work it out for themselves may consult the literature to which references are given and

Taylor's own case, Plate LIV. of his Atlas. Also *N. Y. Med. Jour.*, January 5, 1889; Tilbury Fox's Atlas, Plate XXXIX. (back of the hand), better shown in *Annales de Derm.*, 2d series, vol. x., Plate III. Author's Atlas, Plate XXXIII., Figs. 1 and 2, shows well the palmar condition and the typical papules in an early stage. The comparative study of these plates will do more to convince the student of the unity of the disease under its several designations than reams of letterpress. Kaposi "Ueber die Frage des Lichen," *Archiv f. Derm. u. Syph.*, vol. xxi. (1889), p. 743; and vol. xxxi. (1895), in "L. Ruber Acum. u. L. Ruber Planus." Hans von Hebra, "Lichen Ruber and its connection with Lichen Planus," *Brit. Jour. Derm.*, March, 1890. Neumann, "Ueber Lichen Ruber Acuminatus, Planus, und Pityriasis Rubra pilaris," *Archiv f. Derm. u. Syph.*, vol. xxiv. (1892), p. 3. "Zur Stellung der Pityriasis rubra pilaris, u. des Lichen Ruber Acuminatus." Neisser, "Zur Frage der Lichenoiden Eruption," republished from *Trans. of Fourth German Derm. Cong.* Also in *Trans. Derm. Section, xi. Int. Cong., Rome, 1894*. Besnier's valuable monograph republished from *Annales de Derm. u. Syph.*, vol. x. (1889), with colored illustrations, gives a very complete clinical account, and the history to date. Also a *résumé* in Kaposi Besnier-Doyon ed. (1891), vol. i. p. 385; Brocq, 1892, p. 644; and various monographs. R. W. Taylor, "Lichen Ruber as observed in America, and its distinction from Lichen Planus"; very well described and highly illustrated cases in the *N. Y. Med. Jour.*, January 5, 1889, with histology. A. R. Robinson, "The Question of Relationship between Lichen Planus and Lichen Ruber," *Jour. Cut. and Gen.-Ur. Dis.*, vol. vii. (1889), January, February, and March, colored illustrations.

others which open out from them, but the following is the outcome of it all, as I view it.

The identity of the lichen ruber acuminatus of Kaposi with the pityriasis rubra pilaris of the French school was no longer open to doubt to those who were present at the Dermatological Congresses of 1888 and 1892. At the latter the same case was claimed by the respective parties for their own disease. There remained the question whether Hebra's lichen ruber was the same disease as Kaposi's lichen ruber acuminatus. The latter said it was, and having worked with Hebra for so many years, he of all men ought to know. The difficulty is that Hebra's first thirteen cases, which Kaposi never saw, were attended with grave constitutional symptoms and ended fatally, which is scarcely, if ever, the result of lichen acuminatus. As we see it now, it is considered to be a comparatively benign disease as far as general symptoms are concerned. Moreover, Hebra himself in his latter descriptions mixed up Wilson's lichen with his own disease, and *possibly* some other conditions as well. Fortunately, however, Hebra has published plates of two \* of his early cases, which show that they were identical with those of the other German, French, and American writers.

The above brief historical sketch was necessary because in the second edition of this work the descriptions of the French and German authors were provisionally kept apart until the matter was more completely threshed out.

Of late years, although the disease is a rare one, a good many cases have come under my notice in my own practice and that of others, but I still adhere to Brocq's description in the main, supplementing and commenting upon it when English experience differs from his.

*Symptoms.*—The most characteristic feature of the disease is the development of hard, dry papules seated at the hair follicles; they may be pale yellow, pale pink, red, or brownish-red, and

\* Bärensprung's and Hebra's Atlas, Erlangen, 1869, Plates XIV. and XV. Only two fasciculi of this little-known Atlas were published. Plate XIV. shows the fine papules on the trunk and the scaly incrustation of the face so often depicted and described by French authors in pityriasis rubra pilaire; while Plate XV. shows the closely serried rows of dull red rounded papules, exactly like R. W. Taylor's case, *loc. cit.* French authors claim Taylor's case as identical with Devergie's pityriasis rubra pilaire.

with a lens show an atrophied hair in the center, surrounded by a sort of horny sheath, which penetrates into the follicle. The papules vary in size from a small pin's head to a millet-seed, occasionally to a hemp-seed, and are seen most abundantly on the limbs, chiefly on the back of the hands and on the first, and slightly on the second, phalanges, the wrists, forearms, elbows, and knees; on the body they are most abundant about the waist and lower part of the abdomen, but are not confined to these regions, and are often in the most typical form on the upper part of the trunk.

These papules are not the primary phenomena, as a rule; more frequently the first parts attacked are the palms and soles with scaly patches like psoriasis palmæ, which afterwards coalesce, and the whole of the palms and soles are diffusely red, and more or less rough or scaly, and subsequently keratotic. Or the onset may be on the scalp with an apparently seborrhea sicca, which may form a thick, whitish, adherent crust, or, which is less frequent, the face is the first involved, and the forehead and orbit become covered with fine, firmly adherent scales, which ultimately spread all over on the limbs and trunk. The characteristic conical papules soon follow, and as the disease progresses, they become first rounder and then flattened (Taylor), increase in numbers, crowding together until they become confluent patches with discrete papules round. The patches are pale or yellowish-red, sometimes deep red, slightly thickened, and uniformly covered with scales, which are usually fine and branny, very like psoriasis on the elbows and knees, but they may be glistening and adherent, or in rare instances flaky. Deep folds are formed at the joints, and the enlarged papillæ may have an ichthyotic appearance. Pruritus is absent or only slight. In extreme cases the eruption is universal, and the whole surface dry and scaly like a pityriasis rubra, and at the worst, small blackish conical elevations may be found round the hairs on the back of the fingers. The face, if attacked, may, according to Besnier, be either white with fatty scales, or red and branny, xerodermic, or present a combination of these alternations. The nails are softened, grayish, with longitudinally yellowish striæ. Neumann says the nails are raised up by new nail substance, and laterally compressed, a condition I have also met with, the color being opaque yellow. There

may be *hyperidrosis*, but the general health is often good. The course is slow, irregular, and uncertain, from temporary ameliorations, even apparent cures being followed by inexplicable aggravations or recurrences.

I have seen a case of the xerodermic type in which the whole face was pale red and brannily scaly, while typical papules of a yellowish tint thickly covered the upper part of the chest in rows and groups, while they were only scanty on the limbs.

In another case, while the papules were convex or conical above the level of the umbilicus, below it they were flat and circular in outline, and had a horny punctum in the center slightly projecting above the rest of the papule. It is the presence of these flat round papules along with the conical ones which has led some authors to regard these cases as a combination of lichen planus and lichen acuminatus,\* but there are never flat circular papules in large numbers in lichen planus, the outline of the papules being angular in this disease.

In a third case there was a dense scaly crust over the elbows and knees, very like a psoriasis at first sight, but denser and more ichthyotic in character, but the redness of the rest of the leg distinguished it from ichthyosis. On the chest also there was an inserted triangle of dense scaliness, but on the shoulders the papules were distinctive. The case subsequently developed into pityriasis rubra, and the papular origin was quite lost.

In a boy, with a very partial attack affecting the face and upper part of the trunk, there were a large number of papules of lichen spinulosus about the neck and shoulders. In Taylor's case the papules were of a brownish-red hue, and in some parts in closely serried rows in the natural lines of the skin, exactly like one of Hebra's cases. In a case sent to me by Savill the onset was marked by prostration, malaise, and vomiting, and other digestive derangements, and it ran a short course. Of late too much stress has been laid on the absence of constitutional symptoms; while true of the majority of cases, much depends as to whether the disease develops slowly or rapidly.

Lichen ruber, as Hebra described and named it, when general, is attended with severe symptoms, such as shivering,

\* Kaposi, C. Boeck, and Hans Hebra may be specially noted as having published such cases, also Hallopeau, but he agrees with my view that there is not a combination of two diseases.

rigors, general aching, and itching, followed by profuse perspiration.

The eruption consists of disseminated, firm, conical red papules, from a pin's head to a millet-seed in size, smooth at first, but soon capped with minute scales. They feel, when closely set, like a nutmeg-grater, but at first they are widely separated, the intervals becoming gradually filled up with fresh papules, which itch intensely. The process is rather acute at first, and spreads over the whole trunk, though occasionally it affects the flexures alone. By a repetition of the process the whole skin may be involved, so that it becomes reddened, scaly, and much thickened, at first in patches, and ultimately in a diffuse infiltration interfering with the movement of the joints. The skin of the palms, soles, fingers, and toes is worse than the rest, and deep fissures extend to the corium. The nails of both fingers and toes are affected, being sometimes of a dirty brown color, rough, flaky, and breaking off short, and much thickened if the nail-bed is involved; while, if growing out only from the matrix, they are thin, brittle, longer than the finger, and lighter-colored than normal. The larger hairs of the head and trunk are not involved. The worst form of the generalized disease, if untreated, leads to marasmus and death, but even in these cases the controlling power of arsenic and judicious local treatment have materially improved the chances of cure.

The above follows Hebra's description of the most severe forms,\* but all these developments are only seen in old-stand-

\* Neumann draws the following distinctions between *lichen ruber* and *psoriasis rubra pilaris*. Comparing the papules on the trunk, those of *L. ruber* are persistent, pin's-head-sized, brownish-red, and glistening, but slightly scaly, with a central pit. When they disappear they leave a brownish-red, deeply furrowed, infiltrated surface. In *P. rubra pilaris* the papules in this part are punctiform, with thin scales; they soon flatten down, and leave a soft, non-infiltrated, pale red, scaly surface. On the forearms the papules are larger, and on the backs of the phalanges millet-seed-sized, and when the scale comes off are pitted, so that the surface is cribriform. The papules are limited to the hair follicles.

In *L. ruber* the nails are yellowish-brown, thickened, brittle, and uneven, while the thick hairs are unaffected. In *P. rubra pilaris* the nails are only secondarily affected, being raised up from beneath by new nail substance, and laterally compressed. In universal *L. ruber* nutrition is profoundly affected. In *P. rubra pilaris* it is unaffected. Itching is a

ing cases. If suitably treated, it will not attain to this intensity, and may be cured fairly easily. In milder cases the face may escape or be simply scaly, the palms and soles also are only badly attacked late in the disease, but flat, transparent papules on the palms and soles and flat, itching erosions on the tongue, are described by Unna as occasional manifestations.

*Etiology.*—Practically nothing is known as regards the etiology of either the mild or severe cases. It is much more frequent in Vienna and Paris than in England, and is more common in males.

It generally attacks young adults, but is not uncommon in older persons and may be met with in childhood; the youngest was a case which West showed at the London Dermatological Congress of 1896, æt. three years, and one by Rasch \* of Copenhagen, who records a case of a child of two and a half years.

The characteristic papules on the back of the fingers are often absent in young children, probably from the imperfect development of the hair follicles, but du Castel ‡ had a case of a child of five with the disease of two months' duration in which the characteristic papules on the back of the fingers were well marked. The case commenced with redness and complete desquamation of the palms and soles, leaving the surface bright red, dry, and thinned.

The *pathology* is unknown, but in my opinion it has no relationship to lichen planus.

**Anatomically**, according to Jacquet and Taylor, there is an increased cornification of the epithelial wall of the orifice of the follicle, to which the dermal inflammatory changes are probably secondary. Unna states

marked symptom in *L. ruber*; in *P. rubra pilaris* there is no itching or other subjective symptom. Arsenic is almost a specific in *L. ruber*; it is often injurious in *P. rubra pilaris*, and must always be given with caution.

Emollient applications smooth down the papules of *P. rubra pilaris*, but have very little effect on *L. ruber*.

The above is in my opinion arrived at by comparing extreme examples of the two conditions, and if the intermediate links are studied the distinctions break down.

\* *Dermatologisches Centralblatt*, second year, No. 7. *Abs. Brit. Jour. Derm.*, vol. xi. (1899), p. 449.

† *Annales de Derm. et de Syph.*, vol. x. (1899), p. 444.

that the horny papule may form at a sweat orifice as well as at a hair follicle, or independently of either, that there is also a general hyperkeratosis of the surface, and that the redness of the skin is without a corresponding inflammatory infiltration. The last statement cannot be true for all cases, as in some inflammatory phenomena are undoubtedly present.

In Hebra's form the anatomy has been repeatedly investigated by Neumann, Biesiadecki, and others; their observations, made in an advanced stage, showed a chronic inflammatory process deep in the corium, in and around the hair follicles, whose sheaths by proliferation of the cells were enlarged into knob-like and spigot-shaped excrescences. The other changes were such as may be found in other chronic forms of dermatitis, *e. g.*, prurigo.

*Diagnosis.*—The characteristic features are: in mild cases, the follicular papules, with a horny plug in the orifice of the follicle, which can be picked out, and produces a cribriform aspect; the dry scaliness of the palms, soles, scalp, and face; the inconspicuous inflammatory changes; and, finally, the absence of any disturbance of the general health—in other words, its benign course as compared to most forms of universal dermatitis. In the severe form the development is often rapid, with marked constitutional symptoms, and the papules are crowded together like a nutmeg grater, and often are of a dull red color.

The diseases it most resembles are pityriasis rubra and psoriasis, and some of the slight cases resemble a mild form of ichthyosis.

From pityriasis rubra it would be distinguished by the trifling hyperemia as a rule, the small scales, the presence of the papules and of the diagnostic blackish cones on the back of the fingers, the absence of constitutional disturbance, and its uniformly benign though chronic course.

Only the most crusted cases would be mistaken for psoriasis. There is not the spongy character in the dense crusts, some of the characteristic papules could be found somewhere; and the peculiar incrustation about the face and scalp would be present. Only the mildest cases would be mistaken for ichthyosis. There is sure to be some redness, though it may be slight, and the development would be comparatively recent instead of dating from infancy, as ichthyosis does.

*Prognosis.*—Most cases run a slow course, ultimately ending in recovery unaided by treatment, but relapses may occur even after years of freedom. Cases of rapid development and in-

volving the entire cutaneous surface may be fatal, as in Hebra's series, but they are quite exceptional.

*Treatment.*—Effort should be made to restore the sweat secretion by subcutaneous injections of pilocarpin nitrate gr. 1-6, and active exercise combined with alkaline baths, frictions with soft soap, followed by pyrogallie acid, which Brocq says is especially efficacious, or oil of cade or resorcin, which can be used over larger surfaces than pyrogallie acid, or mercurial applications, which are also valuable for limited areas. In short, the treatment is that for psoriasis, except that arsenic is contra-indicated in an early or developing stage on account of its tendency to increase keratinization of the tissues, which is already excessive, and marked aggravations have followed its injudicious use. Brocq says, however, that arseniate of soda may be beneficial sometimes, if given cautiously.

I have found the administration of thyroid extract a valuable adjuvant to local treatment. As usual, the initial dose should only be five grains a day, with a weekly increment according to the tolerance of the patient, and it is rarely necessary to exceed fifteen grains a day. Graham Little has had a good result in one case with thyroid. If active inflammation sets in, the treatment would be that for pityriasis rubra.

In the severe Hebra type the Vienna authorities consider arsenic a specific for the disease, until it has gone on too far, so that the patient is emaciated and exhausted. Hebra lost all his generalized cases until he tried arsenic.

This discrepancy in the effect of arsenic is one of the chief arguments of those who still hold that lichen ruber and lichen acuminatus are different diseases, but is, in my opinion, of small weight, as it is common to see the same drug aggravate one stage or form of a disease and ameliorate another. Arsenical advocates say that it may be needful to give it in heroic doses for a long period in the form of liquor arsenicalis (℥v to ℥xv, or more if the patient's stomach can bear it, three times a day, of course largely diluted), or, as Köbner suggests, ℥iv of Fowler's solution to ℥xx of distilled water injected hypodermically every day for three or four weeks, or in the form of Asiatic pills, three, gradually increasing to ten a day, each pill being equal to one-twelfth of a grain of arsenious acid. Kaposi gave as many as 4500 of these pills before a cure was





PIGMENTATION AFTER LICHEN PLANUS.

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effected, and without evil consequences. Personally I should defer using it until other means had failed. Arsenical hypodermic injections are very painful.

### LICHEN PLANUS.\*

*Synonyms.*—Lichen ruber planus; Lichen psoriasis (Hutchinson).

*Definition.*—Lichen planus is characterized by the presence of inflammatory papules, of which the most characteristic are flat and angular, either discrete or confluent, and of some shade of red.

Lichen planus was first described by Erasmus Wilson, and is in the great majority of cases a well-characterized affection. It is a rather uncommon disease, forming one per cent. of hospital cases and two per cent. in private practice in this country.

L. planus may be acute and general, or chronic and limited to a few regions. The chronic is by far the more frequent, and will be first described.

*Symptoms.*—Lichen planus presents itself under two aspects, viz., papules and patches, the patches resulting from the aggregation of the papules. It is usually localized to a few regions, but it may be general.

It appears as flat, slightly raised, discrete papules, varying from one-sixteenth to a sixth of an inch in size, of angular outline, smooth, shiny surface, with a minute horny punctum or a small depression in the center of many of them, and of a lilac hue, which is very suggestive of the disease. In fully developed papules Wickham's signs of striæ and grayish puncta on the surface of the papule may be recognized. The angular shape is determined by the boundary lines being formed by the slightly deepened natural lines of the skin.

\* Author's Atlas, Plate XXXII., Fig. 1, illustrates a subacute case with slightly scaly papules (unusual); Fig. 4, the hypertrophic form, Plate XXXI. shows a generalized acute miliary L. planus; and Fig. 3, Plate XXXIII., a generalized less acute form. Owing to the small size of the primary lesions and their shining appearance, it is impossible to give an accurate delineation of their characters, and only the general aspect and arrangement is portrayed in any Atlas in which the attempt has been made.

They are either scattered, or arranged in irregular groups, lines, bands, or circles. The lines usually run transversely to the limb, determined also by the natural markings of the skin, but traumatism, chiefly friction or scratching, may determine the direction of lines in the length of the limb, and bands of eruption generally run parallel to the limb axis.

By the close aggregation of the papules, and by their increase in number, not in size, patches are formed, generally of small area, but large sheets of infiltration may be produced. These patches present a very different aspect to the papules. When small they may be roundish, with a depressed center, but when large they have an irregular, well-defined outline, are raised considerably above the surrounding skin, have a purplish hue, and are covered with thin scales, a feature rarely seen in the papules.

The commonest situations for the eruption, and where it most frequently commences, are the flexor aspect of the wrist and forearm, and next the inner side of the knee, but no external part of the body is altogether exempt from attack, and even the mucous membranes are involved in many cases.

Next in order of frequency to these two positions come the leg below the knee, the ankle and foot, the extensor surface of the arm, the flank, hip and lower part of the abdomen, the palms, soles, and wherever there is friction or irritation. The rarest seats on the skin are the face and scalp, fingers and outside of the lips. When the fingers are attacked, the nails also may become involved, but there is nothing distinctive.

Symmetry, more or less obvious, is the rule, but the lesions may be unilateral; and sometimes the eruption may remain limited to a single patch for a long time before other papules and patches appear.

The papules and patches on their disappearance leave behind them slight atrophic depressions, with long persistent stains, varying from a fawn color to a bluish-black tint, according to the duration and severity of the inflammation.

Itching of moderate intensity is generally present, and may precede the eruption; occasionally it may be intense, and is very rarely absent altogether; sometimes no defect of the general health can be detected, but more often there is some, usually in the direction of neurasthenia or dyspepsia.

*Course.*—The disease may last for years, and if untreated tends to spread; and even with suitable treatment requires several weeks, or even months, for its removal, while the most severe generalized form may lead to marasmus and death. It recurs in some people,\* but at much longer intervals than in psoriasis, and not so frequently.

The *acute* form (acute miliary lichen planus) may be primary or supervene on the chronic form, but not necessarily spreading directly from the old patches. It is less frequent, not more than one to ten of the slower form; it generally commences on the limbs, but may affect the trunk first. It spreads slowly or rapidly; in the latter case, perhaps covering the whole body in a few days, or even within twenty-four hours. In these, which may almost be called malignant cases, there may be pronounced constitutional symptoms: febrile disturbance and profound bodily and mental depression, sometimes resulting in temporary insanity, and either a very prolonged convalescence, or in rare instances, death by marasmus or complications. These symptoms suggest toxic effects, either primary and producing both constitutional symptoms and rash, or secondary, from the sudden disablement of the whole cutaneous envelope. In the majority of cases the constitutional disturbance is seldom very pronounced at first, but itching is nearly always a prominent symptom, and may be very severe, and by the loss of rest it occasions be of itself a cause of a serious aggravation of the general symptoms. Although acute in its development, it is often chronic in its course, unless the patient takes to his bed, and submits himself to appropriate treatment. The face and scalp are seldom attacked, and the palms and soles often escape. The rest of the body, including the neck, is more or less implicated, but there are generally clear areas. The lower half of the body and limbs is usually more affected than the upper. The papules are usually small, flat, or slightly convex, angular, shining, and of a very bright red, and this is the only condition in which lichen *ruber* planus would be an appropriate title, but it is better omitted altogether. There is a tendency to irregular grouping of the papules, and to follow the natural lines of the skin. Although the papules may be densely crowded to-

\*In one of my patients the disease recurred every July for four or five years, and her first attack was fifteen years before I saw her.

gether, their outline is generally distinct for a long time nearly all over the body; but when the disease has lasted some time, the papules coalesce and become covered with small scales, which may almost conceal the red surface beneath. Hallopeau has had three cases with a general redness of the skin, in which the papules had very slight elevation.

*Variations, etc.*—When developing papules are carefully examined with a lens, in a subacute case, only the smallest areas inclosed by the natural markings of the skin are involved. Their color is often the same as the normal skin, and they are recognizable only on looking obliquely along the surface, by their smooth shining appearance, while, when they develop acutely, they are bright red and often remain small; but the more chronic papules are built up to one-eighth or one-sixth of an inch by the aggregation of these minute areas, with the natural lines of the skin still forming the boundaries of the papules. Their surface is dotted with red points, representing the apices of the hyperemic papillæ below, and minute dilated vessels are visible between the papules, accounting for the diffused red hue observed in some cases. The papules used to be described as having the hair follicles for a center, but this is seldom the case, the hair, if present, being at the side of the papule, and the follicle may not be involved at all. The papules vary from the type in color and shape, but their outline is rarely circular (*vide* Lichen Acuminatus).

Many papules, instead of being simply angular, show minute processes at the edge, like a keloid on a small scale. Instead of being flat, they may be convex, small, large, or moniliform.

In a gentleman \* from Brazil an eruption came out soon after his return to England, and when I saw him eleven months later nearly all the body was covered with an eruption of papules the size of a pin's head and convex; they had some tendency to irregular grouping, and while at first sight they looked as if seated at the follicles, a lens showed that the hair was often at the side, not in the center, of the papule.

In model 1435 of the St. Louis Museum, labeled **Lichen obtusus**, the papules on the arm are from a quarter to half an inch in diameter, and lenticular in outline. They may also be more or less conical and slightly scaly. These varieties may

\* Private Note-book, B., p. 147.

occur alone, or, what is more frequent, be associated with the characteristic lesions in the other parts. Unna \* drew special attention to this form after studying the above model.

In an extraordinary case of Kaposi's,† besides the ordinary papules and plaques, there were thick moniliform bands in the flexures of the limbs, on the abdomen, and on the neck. In the last position, which was completely surrounded down to the clavicles, they were like hypertrophic burn cicatrices. Microscopically, the bands were made up of dense cell infiltration, chiefly in the deep part of the corium, without any connective tissue formation. No cause could be discovered for this unusual development. Róna has reported a similar case to the Buda-Pesth Medical Society.‡ Dubreuilh, G. H. Fox, and Bukovsky have also met with similar but less extreme cases. It is open to discussion as to whether these cases really belong to *L. planus*; their general arrangement and the partial involvement of the face are against it, but Kaposi described it as a variety of *L. planus*, and the others have followed him.

**L. Planus Erythematosus** would be a suitable appellation for a very rare variety, of which I have seen two instances. In this the lesions are of a deep crimson tint, very soft to the touch instead of firm, and look more like an erythema than *L. planus*, as they can be temporarily obliterated by pressure, and the epidermis is evidently not involved. One case was a gentleman past middle age. The eruption had existed for a year, and was in closely aggregated, small papules, limited to the groins and large areas on the trunk. The other was not under my care, and the disease had been present over two years, and was very extensive. There was also much telangiectasis of the face and mouth. S. Stirling § has also described a case of this kind.

The papules may be pale or even white in rare cases. In a

\* "Clinical History and Treatment of 'Lichen Ruber,'" *Medical Bulletin*, Philadelphia, 1885. An interesting essay, with many cases.

† *Viertelj. für Derm. u. Syph.*, vol. xiii. (1886), p. 571, "*L. Ruber Moniliformis*," with colored plate.

‡ Quoted by Kaposi, *loc. cit.*, vol. xiv. (1887), p. 279. *loc. cit.*, vol. lvii. Bd. 102, p. 143. Bukovsky gives references to the other cases.

§ *Trans. Third Inter. Cong. Derm.*, 1898.

Hindoo boy of four they were so, and contrasted sharply with his dark skin. Harrison of Bristol wrote to me describing a white-papuled case in a white person.

The position of the lesions exercises a modifying influence upon their aspect. Thus, upon the palms and soles, there is only thickening of the epidermis, with perhaps white spots where the horny layer is cracking. On mucous membranes the sodden papules look white. Lichen hypertrophicus is much more frequent on the lower extremities, and lichen verrucosus is seldom seen above the knee.

Dubreuilh \* records it as affecting the nails, but there was nothing distinctive.

**L. Planus Hypertrophicus.** When the disease has existed for a long time,—and it may last an indefinite number of years if untreated,—the papular part clears up, leaving the patches, which undergo great thickening, often caused and always aggravated by scratching. In some cases with severe pruritus the thickening may occur quite early.

The patches when isolated are roundish or elongated, considerably raised above the surface, rough from small horny adherent scales, and of a purplish hue. This is especially marked about the lower third of the leg, its usual position, but it may occur in any part of the lower and sometimes on the upper limb. By coalescence of the primary patches large areas of infiltration are produced. When these lesions, which are largely epidermic, are removed or clear up very deep pigmentation and even atrophic scarring is left.

**L. Planus Verrucosus** is sometimes only a variety of hypertrophic lichen, in which the papillæ of the skin are enlarged and have an irregular wart-like horny covering. Warty patches may also form primarily, from the aggregation of papules developing round the hair follicles of the lower extremity (rarely on the upper limb). These papules have not the characters of the usual form of *L. planus*, but are acuminate or conical, with central horny projections, and therefore like a nutmeg-grater to the touch, and may be rounded in outline. If they enlarge peripherally they tend to flatten out, but they usually coalesce

\* *Annales de Derm.*, vol. ii. (1901), p. 606.

into a considerably projecting patch, with a very rough irregular horny surface of a dirty greenish or brownish hue.

Similar papules, single or in regular aggregations, but remaining discrete, may sometimes be seen interspersed with ordinary *L. planus* lesions, and the latter are almost sure to be present in some part of the body when lichen verrucosus is present.

**Lichen Planus Sclerosus, seu Atrophicus, seu Morphœicus.** Morrant Baker in 1882 had a case of this, but Hallopeau \* in 1889 first published and described the condition, and he has had two cases since; Stowers showed a well-marked case to the Dermatological Society of London. Baker's case was composed of white, oval or round, convex, solid papules, in symmetrical groups of irregular shape, on the tips of the elbows and knees, the wrists, and back of the hands and feet. There were minute vessels between the papules. Usually, however, they are flat and angular, firm to the touch, and bend with the skin, the seat of election being the lower part of the forearm. In the center is a horny plug, and if this is removed it leaves a hole with a distinct horny wall. The papules are often of a nacreous white, very like morphea, from which it may be distinguished by the horny plugs and the component papules being visible, especially when they run together, though their outline is seldom wholly lost. There is no clinical sign of inflammation. Hallopeau describes the mode of development. A black, slightly projecting horny point forms; it has a bright red areola, which lasts several months, and is united to similar more recent lesions. The black projections fall out after some months and the eruptive plaque is decolorized. There is moderate itching only. Darier's histological observations in one of Hallopeau's cases show that the difference lies in the active inflammatory process being more deeply situated than usual, and the production of fibrous tissue in the papillary layer. There may be lesions of the buccal mucous membrane of the usual lichen planus description.

**On Mucous Membranes.**† It is not infrequent, and espe-

\* Hallopeau's third case, *Annales de Derm.*, January, 1896, vol. vii. Zarubin's case of *L. ruber planus atrophicus* was different and had red papules. *Archiv f. Derm.*, vol. lviii. (1901), p. 323, colored plates.

† Author's Atlas, Plate XXXVII., Figs. 3 and 4, palate and tongue, and Plate LXXXVIII. Figs. 4 and 5, tongue and buccal mucous membrane.

cially when upon the penis may precede the skin eruption by some weeks or months. It is often most marked in the mouth when there is but little eruption of the skin, and may be quite absent in the most generalized cases. On the tongue it usually appears as ill-defined opaque white spots, symmetrically placed on each side of the raphe and scarcely raised above the surface; but in one case of mine there were in addition to the white spots smooth, flat, angular, very slightly raised papules of the same color as the rest of the tongue. On the buccal mucous membrane white branching streaks may not infrequently be seen, most marked opposite the teeth. Inside the lips it is in minute specks, and on the palate I have seen it in a mosaic with white outlines. On the penis the appearance varies, being white or of the usual color, according to whether the glans is covered by the prepuce or not; i. e., whether the part is moist or dry, the glans being the usual site of the eruption. In a little girl under my care the eruption had the aspect of white spots inside the vulva; moreover, I have seen it on the outer side of the vulva in the adult.

**L. Planus Annularis.**—It has been mentioned that the lesions may be in the form of rings; one or two here and there are not uncommon, but in a few cases they are very numerous, and are a striking feature in the case. They are seldom large, a quarter to three-quarters of an inch is the usual size, and the ordinary papules are always present. Cavafy closely observed a well-marked case, in which the rings were strongly developed on the trunk, and affirms that they are formed in two ways, (1) "by the direct confluence of papules into rings, and (2) by gradual peripheral extension of large flat papules, accompanied by involution of their central portions. The former arrangement obtains on the trunk, the latter on the forearm." The rings have a firm, very narrow raised border, sometimes showing traces of their component elements. Brooke and Engman\* have also observed the second and unusual mode of development; the latter affirmed that the peripheral activity and central involution began at an early stage, and not by the involution of a fully formed plaque. Engman examined a ring histologically.

\* Engman, *Amer. Jour. Derm. and Gen.-Ur. Dis.*, vol. xix. (1901), p. 209.

**Linear L. Planus.** Not only may the individual papules be arranged in lines, but the grouped elements may form striæ, or bands, in the course of nerves, or, as some consider them, in Voigt's lines, *i. e.*, the boundaries of the areas included in a cutaneous nerve domain. Although such cases are rare, there are a good many recorded, owing to their striking character. The most favored position is in the course of the small sciatic nerve from the buttock to the middle of the calf. Branches of eruption from this may pass upwards to the genitals or downwards to the heel and along the foot. Such cases were known to Cazenave and Devergie \* as "Lichen en ruban." The latter quotes a case with the sciatic distribution by Faget in 1843. A similar distribution has been noted in other eruptions, and is especially frequent in ichthyosis hystrix striata.

In a lady of fifty, sent to me by my friend Gilbert Smith, a succession of connected rings of eruption extended from the vulva downwards and backwards to the middle of the calf, apparently following the course of the small sciatic nerve. The borders were composed of brownish-red, flat papules, with yellowish staining in the center. There were abundant characteristic *L. planus* papules on the abdomen. The patient was a highly neurotic subject.

Morris, Pringle, Galloway, Meyer, and Heller of Berlin † have met with cases with a very similar distribution, and in Meyer's case the eruption generalized while under treatment. In another of my cases it began just below the left buttock, and extended downwards and forwards in streaks to the anterior surface of the thigh as far as the beginning of the lower third. The eruption consisted for the most part of characteristic lichen planus papules, but there were also some acuminate papules with horny centers intermingled. In a third case, a girl of twelve, it extended from the center of the fork down the inner side of the thigh to the lower third, and from the inner and lower border of the popliteal space to the back of the internal malleolus, in the course, therefore, of the internal cutaneous and saphenous nerves.

In Mackenzie's case the eruption was in the course of the

\* Devergie, "Maladies de la Peau" (1854), p. 449.

† *Archiv. f. Derm. u. Syph.*, vol. xlii. (1898), p. 59, with photograph and microscopic plates and references to cases with similar distribution.

left ulnar and internal cutaneous nerves; in another it began in the course of the intercostal nerves like a herpes, and subsequently, after a long interval, became general. Similar cases in other positions are on record, as in L. Fournier and Paris's case, on one side of the neck in the course of the superficial cervical plexus in front, and the third to the eighth cervical behind.

*Complications and Sequelæ.*—Bullæ are sometimes observed in the course of lichen planus, either on the free skin or where the papular eruption is already developed, but in a case of Besnier's related by Darier, and in Róna's case, an outbreak of bullæ preceded the appearance of the usual typical papules. Kaposi and Leredde have also had striking examples of the bullæ having been associated with the papules from the commencement. As a rule, the bullæ are few in number, from a quarter to half an inch in diameter, with clear or slightly blood-stained contents; but in Kaposi's \* case they were extremely numerous, and actually masked the lichen planus condition for a time. Many of the cases have taken arsenic for some time before the bullæ appeared; but while it is possible, as C. Fox suggests, that it may be a predisposing factor, I can, from personal experience, affirm that in some cases no arsenic has been given. †

According to Ciarrocchi, milium may follow lichen planus as it does sometimes pemphigus. Keratosis palmæ and plantæ may be present in a high degree in some acute general cases. In one patient of mine the keratosis was great, there was purplish redness round, and there was profuse hyperidrosis of the hands. The thickened part was thrown off in large masses as he improved. Similar cases are on record. The horny puncta of the papules are sometimes unusually prominent, amounting almost to spininess; they are usually shed in the course of the eruption, but in one of my cases persisted after the surrounding papules had subsided. Soft soap frictions soon removed them.

Very distinct sepia pigmentation is the rule, but in some cases it is more intense, a bluish-black color being left which is very slowly absorbed.

\* Hand Atlas, Plate 171.

† In *Brit. Jour. Derm.*, May, 1902, with many references, Whitfield found that no arsenic had been given in nine out of seventeen cases. In a bulla examined, the whole epidermis was raised up.

So, too, atrophic shallow pits are commonly observed after the eruption has subsided, but it usually only affects the epidermis and upper part of the papillary layer, and the loss of tissue is soon restored. Occasionally, however, the process goes deeper and permanent scarring results. This is not very rare after the hypertrophic form on the legs, and the scar is then pigmented, but it may also occur even where there have only been papules. Kaposi and Brault \* have recorded cases in which, during a recurrence, the scars of a previous attack were observed as distinct white pits. I have only seen it after patches, not from papules alone.

*Children.*—When occurring in children—a rare event—the disease takes the same characters and follows the same course as the acute and chronic form of adults.

There is, however, a spurious infantile form which is different in development and course. After closely observing this for some years at the East London Hospital for Children, I am convinced that it is only the subsiding stage of a miliaria rubra, either papular or vesicular, in which the top dies down and a scale comes off, leaving a smooth, shining, angular, flat, very slightly raised papule, of a brighter red than usual, though it may get a purplish tint subsequently. It may be on the limbs or trunk, or both, is attended with considerable itching, and gets well in a few weeks with the help of a soothing application, such as calamin lotion and a ferruginous tonic.

It occurs most frequently in infants who sweat profusely, and is, therefore, common in rickets, and probably a sudden chill while in a profuse perspiration is the determining factor.

Liveing and Colcott Fox † have written on this form. It is, however, only noteworthy in diagnosis, and is not a disease of itself. Nevertheless, true lichen planus does occur as a rare event in infants. Kaposi had a case in which the child was only eight months, and Hallopeau ‡ one of twelve months.

*Etiology.*—The most common cause is nervous exhaustion, for which "neurasthenia" or "nervosisme" are the euphemisms.

\* Kaposi's case is related in his Lectures, and Brault's is recorded as a case of lichen planus sclerosus in *Annales de Derm. et de Syph.*, vol. v. (1894), p. 834.

† "Notes on Lichen Planus in Infants," *Brit. Jour. Derm.*, July, 1891

‡ *Annales de Derm.*, vol. i. (1900), p. 225.

It is consequent upon worry, anxiety, or overwork, deficient food, etc., especially in a nervous temperament, but derangements of the digestive or generative system are not infrequent, while in many cases no cause whatever can be made out, the patients being young and vigorous subjects, free from neurosis in any form. The acute general cases are, I believe, often determined by a chill during perspiration, especially in persons who have already had chronic patches.

*Age.*—It occurs mainly between thirty and sixty, and it is more frequent between forty and fifty than in the other decades above and below that one, in which the numbers are about

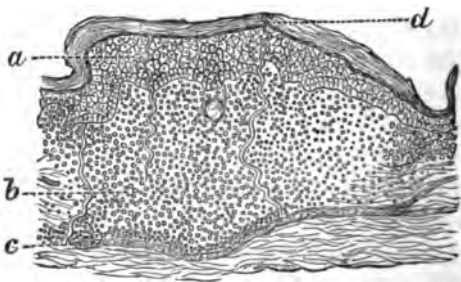


Fig. 24.—A recent papule of lichen planus.  $\times 120$ .

*b*, copious round cell infiltration lifting up epidermis into a papule; *c*, blood-vessel; *a* and *d*, several ducts traversing papule.

equal. The extremes I have seen are three and seventy-four years, but younger ones are recorded (see under Children).

*Sex.*—In England it is more frequent in women. In 114 hospital cases the women were as 7 to 4, and in 108 private cases as 8 1-2 to 7, and other English cases tend in the same direction. In Vienna just the reverse holds good; Kaposi says two-thirds are males. Possibly the much greater frequency of the *L. acuminatus* there may account for the discrepancy, as that seems undoubtedly more common in males.

Traumatism in the shape of scratches and friction will determine the development of *L. planus* in the locality and direction of the damage in a person in whom the disease already exists, and in a case of S. West's a scratch of a cat excited an eruption in the scratch lines in a woman who had no previous eruption, and subsequently other lesions formed where there

had been no scratching. Jacquet goes further than this, and says that all lichen planus is traumatic in this sense in a skin in which the vaso-motor tonus is diminished under a central nerv-

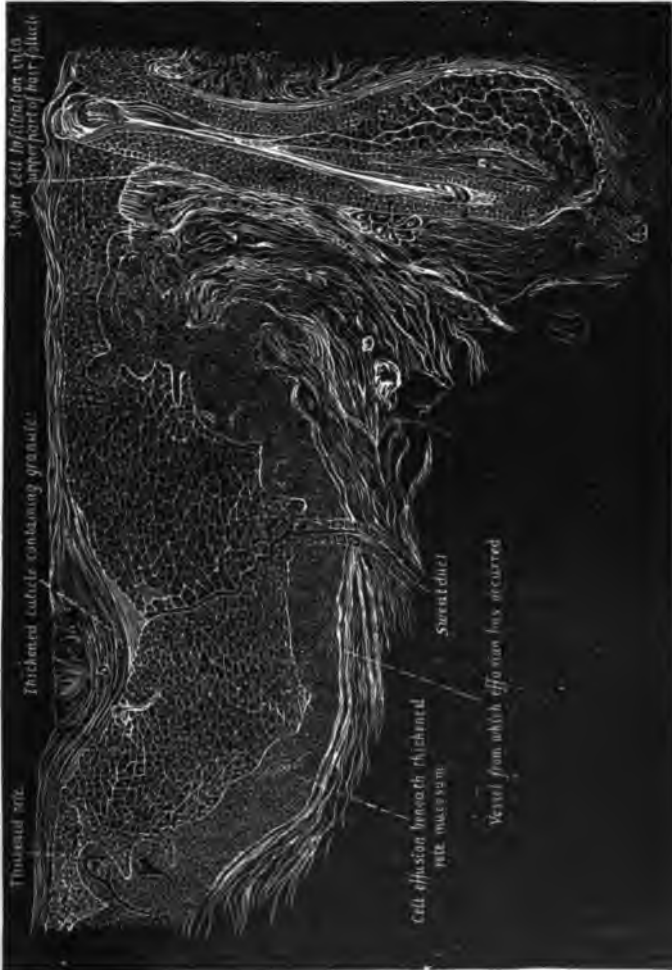


Fig. 25.—A papule of lichen planus, rather older than the one depicted in Fig. 24, or formed by a less acute process. The hair follicle by the side of the papule is quite healthy. the papule being formed round a sweat duct.

ous influence, and that a dermatographic lichen planus can be produced just as a dermatographic urticaria. This is in my opinion an over-statement of the case, but most cases of the so-called Vidal's lichen are thus produced.

*Pathology.*—In *L. planus* the process appears to be inflam-

matory, beginning usually round a sweat duct in the upper part of the corium, with subsequent thickening of the rete, the cells of which are horizontally compressed by the cell mass below; the papillary vessels are dilated. In the infiltrations these secondary changes form the most conspicuous part of the process.

The pathological factor which gives rise to the inflammation still requires elucidation. Colcott Fox suggests that it is only the consequence of neuroparalytic hyperemia, and most French authors agree with him (*vide* Jacquet's theory under Etiology). But while the clinical facts lend some color to the nerve theory, it does not really explain the process, and as disturbance of the nervous system cannot of itself determine the form of an eruption, other factors must be necessary, and of these we are ignorant. The fact of its having an occasional nerve distribution is no ground for supposing a disease to be of nerve origin.

**Anatomy.**—In 1881 I excised recent papules from five living patients, and the border of an infiltrated patch from one, and found the anatomy to be as follows:

A vertical section through a recent papule of *L. planus* reveals a mass of cells like leukocytes, and embedded in this are sometimes seen fragments of the fibers of the corium, in the most superficial part of which the effusion has taken place. Sharply limiting the cell mass below lies a blood-vessel, and it may be assumed that it is through its upper wall that the cells have passed. There are usually no cells below the vessel.

The condition of the rete varies. When the effusion of leukocytes is considerable—*i. e.*, when the process is acute—the rete is forced upwards, and is very little thickened, or indeed may even be thinned in the center, slight thickening being evident at the sides only and in the immediate neighborhood of the papule (Fig. 24). When, on the other hand, the inflammation is not so acute, the rete is immensely thickened by proliferation of its cells. The thickening compresses the cell effusion below it, obliterates some of the papillæ, while others are enlarged by the down-growth of the interpapillary processes (Fig. 25). Thus, in the first case, the cell effusion forms the greater part of the papule, while in the second the proliferated rete has the larger share.

The horny layer is only slightly thickened except in the center of the papule in the second phase, where it forms a sort of conical plug fitting into a depression of the rete, its apex corresponding with the orifice of the sweat duct. The desquamation of this plug affords a ready explanation of the familiar clinical feature of a central depression in the papule. It appears to me much more probable than Biesiadecki's theory that the depression is produced by the tetanic contraction of the arrector pili muscle pulling the surface down. The falling out of a hair does not

account for it, as the hair follicles are seldom the seat of the process. As seen in the figure, a sweat duct may so frequently be traced down the center of the papules that I cannot but think they act, at least, as determinants for the starting-point of the process, the deep-lying sweat glands being unaffected. It is common also to find a healthy hair follicle adjacent to the papule. The vessels are only slightly dilated in this stage. In a papule with a hair in the center, a comparatively rare circumstance. I found thickening of the rete adjoining the hair follicle, slight effusion at the angle of the follicle and rete, and perhaps slight thickening of the upper part of the former; the lower part was entirely unaffected. I have only once seen a cell effusion round the transverse section of a hair follicle deep in the corium. In sections from the border of a patch there was enormous thickening of the rete, the cell effusion adjoining had undergone partial fibrillation, and the vessels were enormously dilated. There were no hair follicles in the piece examined, and it was not sufficiently deep to show the lower part of the corium. Robinson of New York, Caspary, and Török \* have since confirmed the above statements as far as the anatomical facts are concerned, but Török explains them somewhat differently. The older descriptions by Neumann, Biesiadecki, etc., were made from chronic cases of *L. ruber*, and are therefore totally different.

More recent observers, Joseph, Unna and his followers, Norman Walker, Galloway, Macleod, etc., regard the cell infiltration to be chiefly derived from connective tissue cell proliferation, and the process more allied to a granulomatous than an inflammatory process. Galloway compares it with lupus erythematosus. It would be difficult to account for acute cases on the infective granuloma theory.

Among minor points Joseph noted the breaking-down of the stratum cylindricum of the rete and the formation of small cavities; an observation also made by Whitfield. Unna noticed cystic dilatation of sweat coils. Joseph attributes the umbilication of involuting lesions to the absorption of these pseudo-vesicles; Török explains it as seen in well-developed papules by its being held down by the sweat duct, which seems to me very improbable. Unna considers the shining aspect of the papules is due to the stretching of the epidermis by the subepidermic infiltration, and Darier says Wickham's striæ result from the stratum granulosum being unequally thick, the thin parts allowing the vessels to show through.

In *L. verrucosus* Joseph † describes enormous thickening of the stratum corneum and granulosum; "vesiculation" in the prickle-cell

\* "Anatomie du Lichen plan." by L. Török, *Jour. des Mal. Cut.*, 1889, with references to literature. Also in German, illustrated in Ziegler's *Beiträge z. path. Anat.*, Band. viii. Caspary gives a figure closely resembling my second figure.

† "Anatomy of Lichen Ruber Planus, Acuminatus, and Verrucosus," *Archiv f. Derm. u. Syph.*, Bd. 38, January 7, 1897. Illustrated. Abs. *Brit. Jour. Derm.*, vol. ix. (1897), p. 245. Unna's *Histology*, 1896, gives references to date.

layer and hypertrophy of the papillæ, cystic degeneration of the sweat-coils, and mononuclear cell infiltration of the hair follicles.

*Diagnosis.*—In *L. planus*, the discrete, flat, angular, shining papules are, when these characters are combined, so distinctive, especially when they have a purplish tint and are situated on the wrists or over the vastus internus, that there is no disease with which they could fairly be confounded.

More minute and less constant characters, requiring examination with a lens, are a central horny point or a depression, and Wickham's sign of minute gray points and striæ.

Mistakes arise from taking one or two of the above signs as sufficient for the diagnosis. Thus flat round papules may be met with in lichen acuminatus, and as one of the phases of mycosis fungoides \* in the premycotic stage of some cases.

Some of the patches in the hypertrophic form, when raised and scaly, might be mistaken for *chronic eczema* or *psoriasis*. The violaceous or lilac tint almost invariably present in such cases should suggest the possibility of *L. planus*, and with close investigation it is very rare not to find some of the characteristic papules or their stains in the neighborhood of the patch, or at all events in some other part of the body.

Other points in the diagnosis from *chronic eczema* are: The disease began as flat papules, there has never been discharge nor crusts, and the position would probably be different.

From *psoriasis* it began as smooth, not scaly, papules, which did not enlarge at their periphery. The scales on the patch are thin and not heaped up: on their removal their color is purplish or dull red, instead of bright red. Unless situated on the extensor aspect, the position might help here also.

*Prognosis.*—This is generally good for ultimate recovery, but the patients often improve but slowly.

*Treatment.*—The treatment in the main is on the same lines as that of *psoriasis*, except that, as a rule, the local applications require to be rather milder. There are three indications to be followed: first, the improvement of the general health, especially as regards the nervous exhaustion; secondly, the relief of

\* This was so in a case published by M. Morris in *Brit. Med. Jour.*, vol. vi. (1894) p. 287, with colored plate, and in one of my cases of the lymphangitic form.

the itching, which of itself will promote the involution of the eruption; and thirdly, the employment of arsenic and other drugs which experience has proved to be useful; but what may be good for chronic is often unsuitable for acute cases. In fulfillment of the first indication rest for the overwrought nervous system is frequently essential, and in widespread and acute cases bed is by far the best place for the patient; in some cases change of air and surroundings and improvement of the general nutrition and tone are the line to be followed; feeding the patient up with easily assimilated food frequently administered, cod-liver oil, nervine tonics, as iron, in full doses, quinine, the mineral acids, and nux vomica, may do the rest. If, however, the digestion is disordered, that must first be corrected by the removal of constipation, dieting, alkalies, bismuth, bitter tonics, etc.

Arsenic used to be considered to be specific for this disease, but it often fails, and has in my practice been largely superseded by other medicines. It is often unsuitable for various reasons.

For example, in cases where an irritable condition of the alimentary canal exists, this must be subdued before it is safe to give the drug. Some patients are intolerant of arsenic, and there are some cases where it seems even to aggravate the eruption. Tilbury Fox seldom gave arsenic, and in many localized cases and in the verrucose patches its influence is very slight. For the less severe cases it may be said that arsenic is likely to be most useful in proportion to the chronicity or low intensity of the inflammation, where there is no defect of the general health that can be better removed by other means. Liveing strongly recommends bichlorid of mercury 1-16th of a grain three times a day, which is often of great value, but some prefer the biniodid; their action is probably identical. Tilbury Fox advocated diuretics, followed by the mineral acids and nux vomica. I have used this plan a good deal, but latterly have found the salicin treatment gr. xv to gr. xx ter die of great value in a large proportion of subacute cases, and have succeeded without local treatment in producing involution in many instances. Where the patches are few, indolent, and chronic, and in most hypertrophic and verrucose cases, internal treatment is of little avail, but an extensive hypertrophic eruption

on the leg in one of my cases entirely disappeared after a course of Marienbad taken for gouty conditions.

In acute, widely spread cases, large doses of quinine in an effervescing mixture, as in pityriasis rubra, have succeeded well in my hands. Salicin has succeeded in these cases also. When the itching is a strong feature, either in acute or chronic cases, antipyrin gr. v twice or thrice a day is often most valuable, both in relieving the itching and in calming the patient, who too often has but little resisting power left in his shattered nervous system. Freeman had success with ammonol in 3 to 5 grain doses.

External treatment will materially influence the duration of the eruption. Some form of tar is generally useful, but it is recommended with reservations. It is very likely to disagree where there is intense hyperemia, as such cases will not tolerate skin stimulants; here calamin lotion or liniment or inunction of oil or vaselin, with a little liquor plumbi subacetatis, or other soothing applications, like those referred to in the treatment of acute eczema, give most relief. The inunction of olive oil, with acid. carbolic. gr. 10, or thymol gr. 10, or ol. rusci ℥x to ʒj, is often very serviceable in relieving the itching. In nearly all other cases some form of tar is very beneficial. As a rule, I prefer liquor carbonis detergentis ℥x up to ʒj, to one ounce of water or calamin lotion, dabbed on several times a day; thymol or naphthol gr. 10 to ʒij to ʒj of lard or vaselin, or as a lotion, have been found very useful. Where strong remedies can be borne, nothing, in my opinion, acts so quickly as the soap and spirit liniment with ʒss to ʒiv of oil of cade to the ounce. As a rule, the best plan is to begin with a weak application and gradually to increase the strength. Other remedies recommended are salicylic acid or bichlorid of mercury lotion. Unna's formula of gr. 20 of carbolic acid and gr. 2 to 5 of hyd. bichlor. to the ʒj of zinc ointment has often been serviceable in my hands; ol. rusci ℥xx, ung. hydrarg. ammon. ʒj, is another useful formula. Alkaline and bran baths are likely to do good in almost all cases, and tar or sulphur baths sometimes. Jacquet strongly recommends hydrotherapy in the form of gentle tepid douches for several minutes, to be followed by momentary cold ones. The verrucose patches are very rebellious to treatment. Unna's salicylic plaster, applied until the hard-

ened epidermis can be removed, is a useful preliminary. Then the pure oil of cade should be brushed in, and a solution of bicarbonate of soda, 3ij to the pint, applied on lint under oiled silk. Or the Beiersdorf paraplast of mercury 50 per cent., carbolic acid 7.5, may be applied after the salicylic acid plaster has done its work. It has been recommended to lightly stroke the patch with Paquelin's cautery, and then apply boric or other mild antiseptic ointment; but this is rarely necessary, and few patients would consent to it, as the patches give very little inconvenience except itching. Time alone removes the pigmentation left after the removal of the papules or patches.

### LICHEN VARIEGATUS.\*

*Synonyms.*—Parakeratosis variegata (Unna), Dermatitis variegata (Boeck), Psoriasiform and Lichenoid Exanthem (Neisser, Jadassohn, Juliusberg, and F. Pinkus), Erythrodermie pityriasique en plaques (Brocq), Pityriasis Lichenoides Chronica (Juliusberg), Dermatitis psoriasiformis nodularis.

Unna and his pupils, Santi and Pollitzer, were the first in 1890 to differentiate this rare form of disease, although cases had been previously recorded as a variety of lichen planus, etc. Since then cases have been published by Neisser, Jadassohn, Juliusberg (three cases), Pinkus, Róna, etc., but Unna's name

\* *Literature.*—Tilbury Fox's Atlas, Plate XIII., called Lichen Ruber, from a St. Louis model of a case of Lailler's; a copy of it is in the College of Surgeons Museum, No. 88, Derm. series, labeled by Erasmus Wilson Lichen Planus—var. Retiformis. Parakeratosis variegata: Unna, Santi, and Pollitzer, *Monatsh. f. prak. Derm.*, vol. x., Nos. 9 and 10. 1890, with a general review of the class they called parakeratosis, give the history of two cases. Psoriasiform and Lichenoid Exanthem: Jadassohn in *Verhandl. IV., Deutschen dermat. Congr.*, Juliusberg, *Archiv f. Derm. u. Syph.*, vol. xli. (1897), p. 256, and under the title, Pityriasis Lichenoides Chronica, *loc. cit.*, vol. 1., Heft 3. 1899. F. Pinkus in *Pick's Festschrift*, 1898; Brocq, "Erythrodermies Pityriasiques en plaques disséminées," *Revue Générale de Clin. et de Therap.*, 1897. Fox and Macleod on a case of Parakeratosis Variegata, *Brit. Jour. Derm.*, vol. xiii. (1901), p. 319, with histology and abs., with critical review of nearly all the cases to date. Abraham has shown a case since their paper, a woman, æt. twenty-two.

has not met with acceptance, so I venture to propose it as a form of lichen,\* the clinical resemblance to lichen planus having been recognized by most observers. Jamieson in 1898 showed three cases in Edinburgh, and Eddowes one in London in 1899; Colcott Fox showed a case, and I have shown two cases to the Dermatological Society of London. The eruption is general in distribution, sometimes including the face, of slow evolution and very chronic course, lasting for years (thirty years in a case of Jamieson's). Subjective symptoms are as a rule almost absent, though in Brocq's case itching preceded the eruption and subsided when it was out, and in mine it itched at night, and if he began to scratch he could not leave off. The most striking feature is the arrangement in bands or semi-confluent patches, oval or round, inclosing areas of healthy skin, so that a reticular appearance is produced. The patches are covered with thin, delicate scales, which, on removal, leave the skin shiny or waxy-looking, and of a yellowish or bluish tint, the color being deeper on the lower extremities. The eruption as a whole has a pale lilac hue. There is a slight atrophy left for a time, where papules have involuted.

The patches are generally well defined, and while the smaller resemble lichen planus, the larger are erythematous, rough or rather scaly, and decidedly infiltrated. There are also disseminated very flat pin's-head to lentil-sized papules with usually a small scale in the center, and there is sometimes bleeding on removal. This is the early or lichen stage; the scaly or psoriasiform stage is a later development.

*Variations.*—All the cases previously referred to, described under various names, have a general resemblance clinically, and a still closer one microscopically. In all subjective symptoms were almost absent, and all were unaffected by local applications, and had a similar regional distribution. They presented some minor differences. In Brocq's erythrodermie-pityriasique there were disseminated plaques instead of reticulation.

\* Fox and Macleod object to the generic title "Lichen," because the primary lesion cannot always be proved to be a papule; but it is only meant as a convenient clinical term, and designates a conspicuous feature of all well-marked cases which has struck every describer, and it avoids the erroneous term parakeratosis. Jamieson strongly upholds that the disease is a lichen.

J. C. White referred his cases to Brocq's type, but his second case was like one of mine. In Jadassohn's psoriasiform and lichenoid exanthem the papules were not reticular, but were grouped, oval or round, had fine scales, and bled easily when these were scratched off.

In the seven cases collected by Juliusberg the primary lesion was a smooth, red, flat, pin's-head-sized papule like that of lichen planus, which subsequently acquired a thin, shining white scale.

They are all evidently only variants of one affection, the arrangement of the exanthem being the most variable feature.

*Etiology.*—Neither age nor condition seems to have any bearing on the disease, but it is much more common in men than women. One case (Juliusberg) began at seven years, the others have begun in adult life. Pinkus' case and my own were worse in winter, but the others have been unaffected by season. Being subjected to great and sudden variations of temperature seemed to have an etiological bearing in some cases.

*Pathology.*—This is unknown. Fox and Macleod's suggestion, that it is due to a vaso-motor disturbance associated with edema and infiltration of cells in the corium, with secondary changes in the epidermis, appears to fit the facts.

*Anatomically* there are slight inflammatory changes with cell infiltration in the papillary layer and slight increase in the prickle cell and horny layers. Unna regards these changes in the epidermis as primary, hence his term parakeratosis, but this cannot be proved. Juliusberg admits the similarity of histology of his cases to Unna's, but thinks they are different diseases. Macleod showed sections to the Dermatological Society of London, in which there was no parakeratosis to signify, and in some parts, actual thinning of the epidermis. The granular layer was either diminished, absent, or well-defined. The general result was that of a superficial inflammation of the corium, with secondary changes in the epidermis.

*Diagnosis.*—The slow evolution, persistent generalization, absence of itching, reticular or patchy arrangement, papulo-scaly and scaly patch aspect, persistence, and rebelliousness to treatment, are the most distinctive features. The absence of scaly crusts, only delicate scales, the general arrangement and whole picture, are different from psoriasis. It is most like lichen planus, but the scaly character, even in the papular stage, the reticular arrangement, the rebelliousness to treatment,

together with the frequent involvement of the face and the absence of itching, are differentiating characters. The attempt of some authors to distinguish between the parakeratosis variegata of Unna and psoriasiform and lichenoid exanthem of Neisser, etc., is, in my opinion, futile, the more scaly cases being of longer duration than the others. It is also like the lichenoid premycosis erythrodermia. One of Jamieson's cases claimed by Unna as parakeratosis variegata turned out to be mycosis fungoides.

*Treatment.*—All concur in its being most rebellious to treatment both internal and external. Unna claims most success with frictions with pyrogallic acid so strong as to be dangerous but for the administration of large doses of hydrochloric acid, which neutralizes its poisonous effect. Chrysarobin externally and arsenic internally have failed to touch the disease.\*

### LICHEN SCROFULOSUS.†

*Synonym.*—Lichen scrofulosorum.

*Definition.*—Lichen scrofulosus is characterized by very small chronic inflammatory papules, of a red color, fading to that of the normal skin, disposed in groups and circles, and occurring mainly in scrofulous subjects.

Mild degrees of this eruption are not uncommon among the children of the poor, but are usually only discovered accidentally, but although commoner than supposed, well-marked cases are rare. Neumann reckons it at 3 per 1000 cases of skin diseases in adults, and 5 per 1000 in children, and my own experience at the East London Hospital for Children gave the same pro-

\* Compare Plate XXVI. of Author's Atlas, representing a remarkable case named psoriasis follicularis; although psoriasiform, lichenoid, and reticular, both the eruption and the general history were different from lichen variegatus.

† Illustrated in Author's Atlas, Plate XXXIV., Fig. 1, on the leg of a child. Hebra's Atlas, Lief. 9. iii., Plate III., trunk and arms. The small follicular syphilid in the syphilid plate of this work would equally well represent this eruption, except that it is of slightly browner hue. Twenty-one cases, including fifteen of my own and six of Dr. Tilbury Fox, were published in vol. xii. of the *Clin. Soc. Transactions*, in which there is a very good plate of the disease.

portion, while at U. C. H., with cases at all ages, only half that proportion are met with.

*Symptoms.*—The papules in this disease are from a pin's point to a pin's head in size, slightly conical, of a bright red at the very first, fading later into a pale red or fawn color, or even the color of the normal skin, and tending to be arranged in roundish groups, circles, or segments of circles, *i. e.*, the normal arrangement of the hair follicles; other papules may, however, appear in the intervals of the groups in some parts, filling them up, and so producing large surfaces covered with the eruption, and looking very like an exaggerated cutis anserina. A minute scale is formed upon each of the older papules, which, after remaining for a variable period of weeks or months, undergo retrogression, desquamate, and leave behind them small yellowish pigmented spots.

The eruption is usually limited to the trunk, itching is absent or very slight, and some evidence of tuberculosis is nearly always present.

With regard to position, it is usually more abundant at the sides of the trunk and over the lower ribs and flanks, than upon the front and back; the neck is often affected, the limbs rarely beyond the groins and axillæ, but when they are, the arms are more frequently involved than the legs. In one of Neumann's cases, æt. four and a half years, the whole surface was affected, except the legs. The papules may be grouped round lesions of scrofuloderma or lupus.

*Course.*—Fresh papules frequently form elsewhere, and thus by successive crops keep up the disease for years, or the disease disappears for a time and then recurs. It leaves no scars in its train.

*Variations and Complications.*—In addition to the above-described papules others of a larger size may be seen here and there with a yellow sebaceous plug in the center, which may go on to form acne pimples or pustules. These pustules may also arise even where there are no other papules, as on the limbs or face. An extreme development without any lichen scrofulosorum is described under Acne.

In some cases many of the papules have a horny spine projecting from their center, the condition called lichen spinulosus being present as a complication.

Hallopeau has observed papules like those of lichen acuminatus on the back of the first phalanges of the fingers. In severe cases fine branny, glistening scales are formed between the papules, giving the skin a very cachectic appearance. These lesions are really only a special feature of the disease, but other concomitant skin affections may occur, such as seborrhea of the scalp (Neumann), purpuric extravasations into the hair follicles, especially on the dorsum of the feet, which is the so-called "**lichen lividus**," and, more common than this, a pustular eruption about the genitals of an eczematous nature, beginning as inflammatory nodules.

Undue prominence of the hair follicles was noticed by Dr. Tilbury Fox to be generally present.

According to German authorities 90 per cent. have some evidence of scrofula in the shape of enlarged lymphatic glands, especially the cervical, submaxillary, axillary, and tonsils; caries or other bone-lesions and ulceration of the skin are also common. Lupus vulgaris was present in six out of forty-three cases of Lukasiewicz. Phthisis is unusual, but may be present, and frequently figures in the family history, and several of my cases had pleuritic effusion; on the other hand, I have met with one case where the child was well nourished and apparently in perfect health, with a good family history; nevertheless, cod-liver oil cured her.

*Children.*—The limbs are more frequently affected in children than in adults, and the eruption may occur there without involving the trunk, a peculiarity hardly ever seen in adults,\* and, as far as my experience goes, the younger the child the less the liability to acne pustules. Phthisis also is a more common accompaniment in children than in adults.

*Etiology.*—The scrofulous predisposition seems to be the main, if not the sole cause; though, according to Lukasiewicz, insufficient food or any drain on the system may lead to it.

*Age.*—The disease is commonest in childhood; Neumann's, Kaposi's, and the English cases agree in this; yet Hebra's original description was taken from over fifty consecutive cases which were all between fifteen and twenty-five years, probably from there being only a small proportion of children in his clinic;

\* In a woman of twenty-one under Lukasiewicz, the lower extremities alone were the site of a thick eruption.

but the vast majority of cases occur between two and twenty years.

The youngest case I know of was one of my own, æt. eleven months; the oldest a case of Lukasiewicz, æt. fifty-six years.

*Sex.*—It is much more common in males, at least in Germany, for all Hebra's cases and thirty-five out of forty-three of Lukasiewicz's cases were males. On the other hand, a majority of the English cases were females.

*Anatomy.*—Kaposi's investigations in 1868 showed "that the lichen papule is formed by a cell infiltration of the papillæ around the follicle, and the central scale, by a collection of epidermis at its dilated orifice." These exudation cells are first seen round the vessels and in the meshes of the areolar tissue at the fundus of the follicle and sebaceous glands, and later, within those structures, afterwards accumulating to such an extent in their interior that the sebaceous gland-cells are thrust toward the aperture, and the root-sheath separated by the follicular wall, which becomes quite distended by the accumulated cell-mass. More recent observations do not invalidate the above.

Darier found also perifollicular changes, which appeared to him to be of a tubercular character; giant cells surrounded by numerous nuclei were conspicuous. Jacobi and Wolff found bacilli, and from another case Jacobi made intra-abdominal inoculations with papules into a guinea-pig, and found caseation of mesenteric glands near the points of inoculation. On the other hand, Jadassohn and Lukasiewicz failed in similar experiments, as did also Lafitte from a case of Hallopeau's, and Lefebvre had a negative result, but Pellizzarri succeeded; and in 1899 Haushalter\* inoculated four guinea-pigs with scrapings of *L. scrofulosus* with positive results; but his diagnosis is not indisputable, as the eruption was scattered, left scars, and involved the face. Wolff also has found bacilli. Lukasiewicz† examined twelve cases histologically, and although he found giant cells there were neither tubercle bacilli nor caseation nor coagulation necrosis, and he considered, therefore, that there was no ground for regarding it as a tuberculous morbid process. He says there is an infiltration of large fusiform cells, beginning round the sebaceous glands and extending to the hair and sweat follicles.‡ and regards the whole process as due to malnutrition, of which tuberculosis is only one cause. He thinks Sack's observations were made on the miliary syphilid, which so closely resembles *L. scrofulosus*.

The clinical behavior of the disease is so unlike any indisputable tuberculosis of the skin due to the direct presence of tubercle bacilli that

\* Haushalter, *Annales de Derm.*, etc., vol. ix. (1898), p. 455.

† *Archiv für Derm. u. Syph.*, vol. xxvi. (1894), p. 33. Full abs. *Brit. Jour. Derm.*, vol. vi. (1894), p. 314.

‡ In a case of Hallopeau's also the sweat glands were involved.

further demonstration of their presence will be needed, before it can be accepted as a direct tuberculosis.

Hallopeau's theory that it is due to a tuberculin toxin would be much weakened by Jadassohn's observations of a case in which the eruption disappeared under the influence of tuberculin injections; but, on the other hand, Schweninger and Buzzi state that they have seen it develop after tuberculin injections. A possible explanation of the discrepancy of the experiments is suggested by Gilchrist's\* observation that there were typical tubercles in the deep part of the skin below the hair follicle from a negro child, while the anatomical process producing the papules themselves was quite superficial. Thus, while the papules themselves may not be directly tubercular, they may have been produced by the more deeply seated tubercle itself.

*Diagnosis.*—The small size and pale red color of the papules, their arrangement in groups and circles, their limitation to the trunk, and the youth of the patient, together with the absence of itching † are the most distinguishing features. The diseases most resembling it are papular eczema, follicular syphilids, *L. pilaris*, and occasionally psoriasis punctata. It has no relation whatever to *L. circinatus*.

*Papular eczema* is not so likely to be limited to the trunk, the papules are a brighter red, some of them are very likely to go on to vesiculation at their summits, and itching is almost always a prominent symptom, and there is not the same grouping in clumps and circles.

The large and more common of the *follicular syphilids* has, in comparison with *L. scrofulosus*, much larger papules, of a deeper, duller red, the limbs are more often affected, and there is sure to be confirmatory evidence of syphilis, as it occurs rather early in the secondary period. The small follicular syphilid is rare, and, as far as the papules and groups are concerned, identical in appearance with *L. scrofulosus*, ‡ but the limbs and even scalp may be affected, and though I have seen it in a girl of eleven years, generally the age of the patient will suggest further investigation, when other evidence of syphilis will be almost surely forthcoming.

\* Reprint from Johns Hopkins *Bulletin*, No. 98, May, 1899.

† Though usual, it is not invariable, and I have known it very marked in the early stage.

‡ In two well-marked cases, both women over forty, the resemblance was so exact that it was only these points that gave me a clew to their real nature and led to the discovery of conclusive evidence of syphilis.

Where the scaliness (so often present in a moderate degree) is unusually abundant, and masks to some extent the typical character of the eruption, *L. scrofulosus* may be mistaken for *psoriasis punctata*. Its limitation to the trunk, the absence of itching, together with the fact that each papule does not enlarge, and that, as confusion will only occur in severe cases, there are sure to be sebaceous plugs in some of the papules, if not actual acne pustules, will distinguish the lichen, while other evidence of scrofula is sure to be strong in such cases.

The true inflammatory *lichen pilaris* is distinguished by the groups being few in number in most cases. The papules are larger and generally limited to the limbs, and contain spiny plugs of epidermis. When this condition complicates lichen scrofulosus, the spines spring from the papules of *L. scrofulosus*, which are smaller than those of *L. pilaris*; moreover, there are sure to be groups in which there are no spines, and the whole picture would be that of *L. scrofulosus*, not of *L. pilaris*.

*Prognosis*.—The disease is always curable; and even untreated cases, though perhaps lasting intermittently or persistently for years, do not produce much inconvenience.

*Treatment*.—This is simple and effectual. Cod-liver oil, internally and externally, always removes the eruption. It should be given in moderate doses at first, increased up to as much as the patient can assimilate; *i. e.*, rarely more than half an ounce a day for a child of five, and an ounce and a half a day for an adult. Externally it must be not only rubbed in, but the skin kept constantly soaked with it. This is Hebra's treatment, and answers well, but is, necessarily, extremely disagreeable for all parties concerned. I have, therefore, tried other emollients, and have found that the inunction of vaselin, either plain, or better with liq. plumb. subacetatis ℥xv, thymoli gr. 5, or ol. cadini ℥v, to the ounce, is quite as effectual and much more pleasant, while smaller doses of oil are usually sufficient, and less likely to upset the patient.

Chrysarobin gr. v to ʒj has been recommended as very efficacious, but its staining quality and tendency to produce erythema restrict its use to obstinate cases of limited extent.

**LICHEN PILARIS SEU SPINULOSUS.\***

*Synonym.*—Lichen spinulosus (Devergie).

*Definition.*—An inflammatory disease of the hair follicles, in which a spiny epidermic peg occupies the center of the papule.

The term *L. pilaris* was formerly used for the affection described elsewhere as *keratosis pilaris*; it is here employed, in conformity with the other lichens, for an inflammatory eruption. It is rather a rare disease. Numerous cases, mostly in children, have come under my observation.

It may develop acutely or subacutely in crops, and consists of papules about the size of a pin's head, red, conical, and containing in their center a horny spine, seen, when viewed obliquely, to project about one-sixteenth of an inch, and when the hand is passed over the affected region, it imparts to it the sensation of a nutmeg-grater; this epidermic plug can be picked out, leaving a depression in the papule. When the papule has been present some time the redness subsides, and the papule is the color of the normal skin. There is little or no itching, and the eruption gives but trifling inconvenience, except from the discomfort produced by the horny spines catching in the clothing.

The papules are densely crowded into patches, often very large and irregular in outline, symmetrically distributed, sometimes in a few, sometimes in many regions of the body. The positions most common are the back of the neck, the buttocks, the trochanteric regions, the abdomen, the back of the thighs, the popliteal spaces, and the extensor aspect of the arms. There are few parts of the body exempt, but I have never seen it on the face, upper part of the chest, the hands, or the feet. I have seen it *en nappe* from the hair line to the loins, but in these extensive cases the horny spines vary much in development, the longest being generally on the neck.

Where the eruption is not so dense there is a tendency to form roundish groups, and there are always some disseminate papules, besides those in the main patches. The eruption comes

\* Illustrated in Author's Atlas, Plate XXXIV., Figs. 2 and 3, an unusually extensive case on the trunk and thighs of a youth, æt. sixteen, somewhat older than the majority of cases. It is a disease difficult to depict in a drawing.

out in crops, a patch appearing perhaps in the night, and continuing to increase for a week by the development of fresh papules. After this, except that the papules grow paler, there may be no change for an indefinite time. As a rule, this eruption is the only one present, but I have seen it associated with *L. scrofulosus*, the small follicular syphilid, and also with *L. planus*.

In these cases the original disease retains its characters with the addition of horny spines in the center of the papules, so that it is not quite correct to say that lichen pilaris is mixed with these other diseases.

*Etiology.*—The cases are too few in number, and the literature is too scanty, to afford much material for ascertaining its causation. In my experience it has occurred chiefly in children, and more often in boys than girls. The most extensively affected case was a boy of fifteen, whose father suffered from psoriasis; I have also seen it in a woman over thirty. Several of the patients have been pale and delicate-looking, but there has been no very definite ill-health.

*Pathology.*—There is evidently first congestion of the vessels, followed by slight effusion round the follicle, and hyperplasia of the epidermic cells lining it. The occurrence of spines as a complication or sequel of other papular eruptions shows that more than one kind of inflammation may give rise to the affection. I am not aware of any histological investigation of this form of folliculitis. Unna's observations refer to *keratosis pilaris*, or *suprafollicularis*, as he calls it.

*Diagnosis.*—This presents no difficulty. *Keratosis pilaris* is the most like it, especially when the redness of the lichen has subsided; but though *keratosis* has an epidermic plug, it is not spiny like that of *L. pilaris*, develops very slowly, and there is no inflammatory redness at any period; it is also a diffuse, not a patchy eruption, and when the epidermic plug is picked out, the whole lesion is removed.

*Lichen acuminatus* also has some points of resemblance, but it is a diffuse general eruption; attacks the hands, which escape in *L. pilaris*, and the epidermic plug is scaly, not spiny. The primary papules of *lichen verrucosus* which may accompany *lichen planus* have been confused with this affection, as the papules are acuminate or conical with central horny projections,

but they have not the spiny character of *L. pilaris*; the papules tend to coalesce into warty masses with a dirty green horny surface, and ordinary lichen planus papules are nearly always to be found in some part of the body.

*Prognosis.*—It is always amenable to treatment, but will, if left to itself, last for an indefinite time.

*Treatment.*—Alkaline baths and friction with the hand while in the bath are useful preliminary measures, and then a liniment of

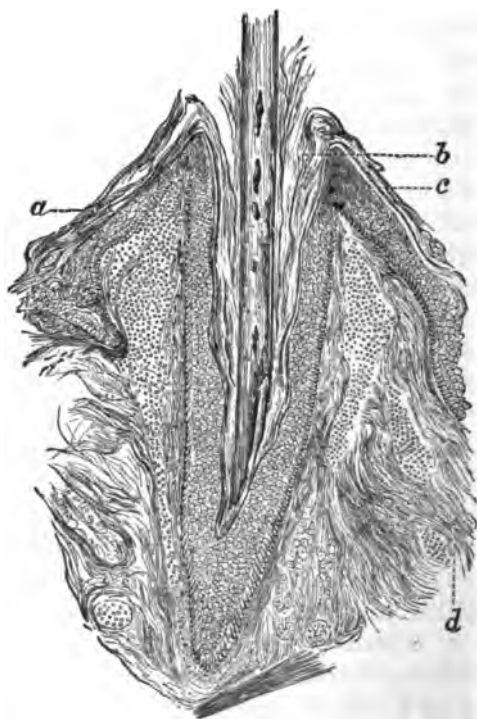


Fig. 26.—Lichen pilaris (special variety).

*b*, orifice of the hair follicle filled up with horny cells; *c*, cells of the rete, elongated by the pressure upwards of the inflammatory effusion of leukocytes and serum as shown at *a*, *d*, artery with the end lost in a mass of leukocytes.

soft soap and spirit of wine with a dram of oil of cade to the ounce, rubbed in with a piece of moistened flannel, has been perfectly successful in my hands. Internally, cod-liver oil, iron,

and general invigorating measures are indicated in most cases. If the redness is marked, the inunction of oil after the baths, instead of the soap liniment, would be advisable at first. If there are only one or two patches, a weak Beiersdorf salicylic acid and creasote plaster would be a good application.

Besides the above affection there is a disease of the hair follicles, of which I have seen a few examples, truly inflammatory in my opinion, which may be thought to be as fairly entitled to the designation as the first one, but it is an uncommon and not very important affection.

*Symptoms.*—Firm, pale red papules, with a small collection of minute scales in the middle, the center of each papule being pierced by a hair, are arranged in irregularly circumscribed patches upon the extensor surfaces of the limbs, or occasionally on the flanks. The patches are few in number and feel rough to the touch, but not so much so as in the preceding affection. They may remain for many months, or even years, untreated. There is moderate itching and no special defect of health. I have seen it only in young adults.

In a case which was under treatment for psoriasis irregularly circumscribed patches of papules, like those just described, appeared symmetrically on the backs of the hands and fronts of the thighs where there had been no previous psoriasis. This is a very rare occurrence and suggests the possibility that the apparently primary affection is really a psoriasis pilaris.

*Anatomy.*—In a piece of skin excised from the thigh of this case I found cell effusion into the angles formed between the follicle and rete, greatest above, but extending in a minor degree nearly to the bottom of the follicle. The cells of the rete at the angle were elongated, and the whole layer adjacent to the follicle thickened, while there was considerable accumulation of horny cells at the mouth of the follicle, some adherent to the hair shaft, producing the funnel-shaped condition seen in keratosis pilaris; in short, it is a keratosis pilaris plus inflammatory effusion round the follicle (Fig. 20).

*Treatment* is the same as that for the first-described *L. pilaris*.

Under the head of *L. pilaris* some authorities, like Tilbury Fox, include inflammatory conditions of the hair follicles, secondary to chronic scabies or other diseases, producing irritation where the firm papules, with no central scales, are scattered over the trunk and limbs, but no designation is required for such a purely symptomatic condition.

### LICHEN ANNULARIS (Galloway).\*

This is a very rare eruption, of which there are only two indisputable cases on record.

In 1895 Colcott Fox showed at the Dermatological Society of London a ringed eruption on the fingers of a girl of eleven which had existed for two months; and a boy of ten was shown in 1898 by Galloway, in whom the disease had been present three years. These two cases were undoubtedly of the same character, and the eruption was limited to the sides and back of the fingers and thumbs, except that in Galloway's case a single nodule was present in one ear.

The lesions began as a nodule, which extended peripherally into a circular patch, and then into a round or oval ring by clearing *pari passu* in the center, where the skin became normal again or faintly atrophic; the border, an eighth of an inch wide, was smooth, rounded, projected the sixteenth of an inch above the surface, was of an ivory-white color and doughy consistence according to Fox, while Galloway described the border as hard. In Galloway's case there was a small common wart on the right third finger.

Dubreuilh in 1895 published a case which he considered to be of the same character in a woman of thirty-three with a bad circulation. The lesions were firm pale elevations on the radial border of the two index fingers, and on the ulnar border of the left thumb. They began five years previously, and slowly increased. The ring was pale, elevated a millimeter, slightly scaly, and firm to the touch. It was cured with Vidal's red plaster, but recurred five years later.

In Fox's case no etiological factor could be detected, while Galloway's was a delicate-looking boy who had gone through the gamut of children's diseases, and there was also the wart previously mentioned, which might possibly have some significance. There was no history of rheumatism either in the patient or the family in either case. Galloway's histological examination showed that the process was "a chronic inflammation of the

\* "Lichen Annularis," by J. Galloway, *Brit. Jour. Derm.*, vol. xi. (1899), p. 221, with colored and microscopic plate, and abstracts and references to Colcott Fox's case and various others more or less resembling it. Compare with *Granuloma Annulare*.

upper layers of the cutis associated with the increase in the overlying epithelium"; "the nature and distribution of the inflammatory infiltration resembled closely that of lichen planus—and although there were very wide clinical differences between the two diseases, the histological characters bring the lesion within the most strict definition of the term lichen."

The treatment adopted by Galloway was the application of a two to ten per cent. salicylic acid ointment, the administration of iron and cod-liver oil, and improved hygiene. With these the lesions gradually underwent involution, and in six months had disappeared, and the boy's health had much improved.

### DERMATITIS.

There remain to be considered certain inflammations of the skin which have no special name, their peculiarities arising, not from the form and arrangement of the elementary lesions, but from their cause. Some of these causes exert their effect directly, *i. e.*, from external application, others indirectly, *i. e.*, when taken internally; and while they are classed, for the sake of convenience, under the name of dermatitis, and some qualifying term is added pointing to their origin, they have often but little in common, except their general title. The predominant lesion in the greater number of them is some form of erythema, but all of the elementary lesions may be excited, according to the susceptibility of the individual to the particular influence, its intensity, and the length of time it is in operation. The signs of inflammation—heat, redness, and swelling—are in proportion to the severity of the lesion. The several groups will be considered under the heads of *D. traumatica*, *D. calorica*, *X-ray Dermatitis*, *D. venenata*, *D. medicamentosa*, *D. vacciniata*, *D. gangrænosa*.

**D. Traumatica.** Under this head are included all kinds of inflammation set up by mechanical causes, such as contusions, abrasions, or excoriations, whether due to blows, pressure, friction (*e. g.*, from riding, rowing, clothing faulty in construction or material), or scratching to relieve the irritation set up by animal parasites, scabies, pediculosis, etc. The excoriations from scratching are often the most important to the dermatologist, and have already been described when considering the

pruritic or "scratched skin." The other lesions are so well known, even to the laity, as not to need detailed description.

**D. Calorica.** Extremes of heat and cold are almost equally capable of producing more or less severe inflammation of the skin, according to their intensity and length of time of the application. Erythema solare, or sunburn, is a familiar example of what may be produced by natural heat, and while it may be erythematous, vesicular, or bullous, it never goes on to complete destruction, as it may do from artificial or ordinary burns or scalds. Bowles,\* however, has shown that it is not the heat rays, in all probability, but the ultra-violet or chemical rays which produce such violent inflammation, and, as is familiar to every climber, the reflection of those rays from snow considerably aggravates their effects; further, that red and yellow pigments stop these irritant rays; merely greasing the skin before exposure will also prevent sunburn, though not so completely as the pigments. Cold may also produce death of the part from prolonged anemia, or from too sudden reaction and consequent destructive inflammation.

**X-ray Dermatitis.** Exposure to the Röntgen rays when unduly prolonged, or too frequently used at short intervals, especially with soft tubes, is liable to set up a dermatitis which in slight cases only reaches to erythema followed by pigmentation, but is in some cases so severe as to destroy the vitality of the exposed part, and lead to the production of a dry superficial slough, which takes months to separate, and may leave an ulcer which takes months or even years to heal. Such cases were frequent in the early days of X-ray employment (Gilchrist collected twenty-eight cases), but are less frequent now. Several cases have come under my observation. One of them of moderate severity, after three exposures of an hour on the abdomen, was a hand-sized dermatitis, of which the central portion ulcerated and took four months to heal. In another case an adherent black dry slough, seven by five inches, was firmly

\* "The Influence of Light on the Skin," etc. An introduction to a discussion at the Dermatological Society of Great Britain and Ireland in May, 1897. *Transactions of the Society*, vol. iii. (1897), and references to previous communications.

adherent nine months after two exposures of forty and ninety minutes respectively. In a third, four years after an attempt to radiograph the kidney, there were still ulcers of about an inch in diameter unhealed, while the rest of the hand-sized burn had cicatrized, leaving a closely meshed scarlet network of dilated capillaries all over the cicatrized area. In two other cases of X-ray burn I have seen a similar telangiectic network in the cicatrix, so it is probably a diagnostic feature. In a third case the same phenomena were present, though there had never been active inflammation. It is emphatically a misfortune that it is better to prevent than to cure, but while in most cases it may be prevented by being careful not to subject the patient to exposures with the tube in too close proximity or of too long duration or frequency, there is no doubt that, besides the quality of the tube, idiosyncrasy plays a part, and that a dermatitis may be set up in some persons by an exposure or exposures which would not do so in others. Moreover, in using the X-rays for therapeutic purposes, where repeated exposures have to be made and a slight amount of dermatitis is sometimes desirable, although the treatment may be left off as soon as erythema appears, the inflammation increases in intensity, sometimes for a week or more, going on to vesiculation, ulceration, and even sloughing, to the embarrassment and chagrin of both patient and operator.

According to Unna, in these cases the collagen (connective tissue) may be mainly affected. It becomes more brittle, and its staining reactions are basophile instead of acidophile, as it is when normal. Possibly this is the reason for the slow healing. In Gilchrist's case osteorathritis occurred. Experimenters whose hands are constantly exposed to the rays, in addition to erythema, sometimes shed the nails and hairs, but not permanently, unless they persist in the exposures. It has been suggested by Bowles and others that the effects of the X-rays are analogous to those of sunburn aggravated by the proximity of the lamp and the frequent repetition of the exposures.

*Treatment.*—Slight degrees of inflammation may best be treated by the frequent application of calamin lotion. More severe inflammations with exudation are best treated with lactate of lead lotion constantly applied, which subdues inflammation and heals superficial ulceration. Deep ulcerations may

be treated on ordinary surgical principles, but give great trouble, and if the size and situation permit may be advantageously excised.

Apostoli cured one case of great severity by the combined electric treatment, "i. e., 1. the polar application of a galvanic current, in order to accelerate the fall of the eschar, and thus favor the tropical and ulterior trophic action of the static bath.

"2. Simple static bathing, which, by its general influence as well as by its direct and local action, hastens the work of repair and cicatrization of ulcers.

"3. The general action of a current of high frequency, which is destined to raise the coefficient of generation nutrition."

It is obvious that very few patients will be able to get all this, but in the case in question, which was of the worst type, healing took place under this procedure.

**D. Venenata.** This includes the various inflammations set up by numerous external irritations of animal, vegetable, or mineral origin. The effects produced on the skin are erythema, wheals, papules, vesicles, pustules, bullæ, or gangrene, according to the susceptibility of the individual, the virulence or concentration of the poison, and the length of exposure to its influence. Eczematous subjects are especially sensitive to such irritating influences, and in such persons eruptions are not only more easily started and more severe, but often persist long after the removal of the cause, in the form of an eczema, indistinguishable from ordinary eczemas of supposed internal origin.

It is impossible \* in this work even to merely enumerate all the external irritants, and it will probably be more practically useful to give headings which will indicate under what circumstances they occur, and give examples under each. These include:

I. Articles in medicinal use applied externally.

The commonest are the well-known irritants—mustard, turpentine, cantharides, tartar emetic ointment, croton oil, mezereon, savin, arnica, iodoform, mercury, chrysarobin, orthoform, etc.

\* The most complete account is that by J. C. White of Boston, "*Dermatitis Venenata*," 1887, and supplementary papers.

The strong acids or alkalies or other caustics produce, as is well known, all degrees of inflammation up to complete destruction of tissue.

2. Dyes or other substances used in clothing or as cosmetics, such as anilin, arsenic, chlorid of tin, chlorid of zinc, and hydrochlorate of paraphenylene diamin (a hair-dye).

3. Articles used in trades and manufactures, such as bichromate of potash, aurantia dye, arsenic, etc.

4. Plant irritants, such as *rhus toxicodendron* and *venenata* and other species, *primula obconica*, the common nettle, several species of *ampelopsis* and *heracleum giganteum*, the flowers of *doronicum pardalianches*, or leopard's bane, *cypridium angelica*, wet ivy, the bulbs of *hyacinthus orientalis* ascribed usually to raphids of oxalate of lime, but Freeman says due to an acarus. These are a few of the irritant plants met with in England, and White gives a long list which is being continually added to from all parts of the world.

5. Besides the irritant action so well known from the stings of bees, wasps, hornets, tarantula, etc., mention may be made of the urticarial and even more severe forms of dermatitis produced by contact only with jelly-fish and certain caterpillars, of which the "woolly bear" \* is the chief offender in England; on the continent "*bombyx processionea*" produces more serious symptoms, one boy stung by several on the chest having had violent irritation, general sweating, and fever, followed by delirium, coma, and death. The long fine hairs which break in the skin are said to be the irritants. An Indian species produces gangrene. This class need not be further elaborated.

1. *Arnica* *rashes* were very common at one time, when the drug was a household remedy for bruises and other slight injuries; but its irritating properties are becoming more generally known, and it is deservedly falling into disuse. The commonest form is that of acuminate papules, like the milder form of *rhus* eruption to be presently described. I have known it produce an acute vesicular eczema, and in one instance, a *pityriasis rubra universalis*.

*Chrysarobin*.—The external application of this drug is liable to produce a peculiar deep, almost coppery red erythema, which extends a considerable distance beyond its site of application.

\* *Lancet*, May 2, 1896, p. 1239, mentions several other species.

Thus, when applied to a part of the scalp, the whole scalp, face, and neck may be affected. There is conjunctivitis, and so much swelling that the eyes are closed, and it is liable to be mistaken for erysipelas.\* In a few days, if the application is stopped, and often even when it is persevered with, the redness and swelling subside, and a dirty, purplish-brown desquamation ensues.

In two cases where I ordered it with lanolin, for alopecia areata, there was a copious outbreak of small vesicles also, not only on the face, but on the forearms, which presented a very eczematous appearance, but soon got well with calamin lotion. Brocq † relates that a man died in 1880 in the St. Louis Hospital with intense general erythema and severe symptoms of poisoning from its too extensive external use. In a case of Vidal's general exfoliative dermatitis of two months' duration, with intense fever, was brought on in the same way.

*Croton oil and tartar emetic* were formerly used as counter-irritants, and produced a pustular eruption, often so severe as to lead to considerable scarring.

*Cantharides, mustard, and turpentine.*—The effects produced by these drugs are so well known as not to need special description, and mezereon and savin are rarely used.

*Iodoform.*—This drug is a not unfrequent and unsuspected cause of eczemaform eruptions chiefly, both in patients and surgeons. Wathen of Clifton ‡ gives a personal experience of its effects excited by handling iodoform gauze; the eruption was of a vesiculo-bullous character. Jessop of Leeds also thinks that dry iodoform is worse than wet. Wathen found that boric acid and lanolin cream, or thick gruel with firm bandaging of each finger, gave most relief.

*Orthoform* § has been reported by Dubreuilh as having produced not only similar eruptions to iodoform, but even gangrene resembling lupus vulgaris treated by pyrogallie acid.

*Mercury* only excites irritation in very delicate skins, or when

\* Such a case is recorded as erysipelas in *Med. Times and Gazette*, April 3, 1886.

† *Amer. Jour. Cut. Med.*, vol. iv. (1886), p. 24.

‡ *Trans. Derm. Soc. Great Brit. and Ireland*, vol. iv. (1898), p. 21.

§ *La Presse Médicale*, No. 40 (1901), p. 233. *Abs. Brit. Jour. Derm.*, vol. xiii. (1901), p. 277, with several cases.

used too long or too vigorously in one place; its injurious effects may be avoided by frequent ablutions with soap and water, and changing the site of its application frequently.

From its over-use, however, a violent dermatitis may be excited. My late colleague, Berkeley Hill, asked me to see a case in his wards, of a patient who had rubbed in the ung. hydrarg. in a wholesale manner, and had set up a severe pityriasis rubra universalis. In former days this was less rare. Moriarty \* published in his brochure several cases, two fatal in Dr. Gregory's practice; but in those days mercury was generally overdone.

*Phenyl-Hydrazin-Hydrochlorid.*—Although only rarely used in medicine as a urine test, the following case is mentioned because it illustrates in an extreme degree the growing sensitiveness to the action of an irritant which has once excited dermatitis. An analytical chemist displayed an idiosyncrasy towards this substance. The eruption had the appearance of an eczema and was at first local, but as his sensitiveness increased, not only did the primarily local inflammation generalize in a few hours, but the minute quantity of vapor conveyed in the clothes of his assistant, who visited him at his own house, excited an outbreak.†

2. *Anilin dyes*, especially the red ones, and J. C. White says the black also, are frequent causes of eruption nowadays, chiefly through clothing, such as gloves, socks, flannel shirts, drawers, etc., dyed with these substances. They are apt to excite an itching, red, papular eruption, in extreme cases going on to vesicles, pustules, etc. Though limited at first to the parts in contact with the dye, the eruption often spreads to a considerable distance beyond the part first affected, and while the primary attack may only last a week or two, by recurrences the process may go on for months. H. Lee records several such instances, and most dermatologists can recall cases from their own experience. Accidental contamination of the dye with arsenic is supposed to be the real cause of these eruptions, but some ascribe them to the anilin itself.

\* "A Description of the Mercurial Lepra," Dublin, 1804. Also Alley, "Peculiar Diseases arising from the Exhibition of Mercury," Dublin, 1804.

† Dr. A. H. Hall, *Brit. Jour. Derm.*, vol. xi. (1899), p. 112, a good account with noteworthy remarks.

*Hydrochlorate of paraphenylene diamin* \* under the influence of oxygen is converted into quinone ( $C_6H_4O_2$ ). This property has led to its being used as a hair-dye, as tints from auburn to jet black may be produced. An aqueous or alcoholic solution of the diamin is first brushed or sponged on, and a few seconds later oxygenated water is similarly applied with immediate effect.

Unfortunately, quinone sublimates at comparatively low temperatures, and gives off most irritating vapors, which excites a dermatitis of erythema with swelling, papular and vesicular lesions being the most common. There is intense itching of the skin and pricking of the eyes. The distribution in the upper third of the face, the swollen eyelids, the vesiculation of the rim of the ears, are suggestive of the cause.

3. *Bichromate of potash*.—Workmen who use this drug in their trade, such as French polishers, autotype photographers, or those concerned in its manufacture, are liable to various eruptions.

In a case of my own, a French polisher, æt. forty-four, who had had several attacks, the eruption was limited to the palms, the whole surface of which was thickly covered with pustules an eighth to a quarter of an inch in diameter, with a red areola. Other workmen suffered similarly, but not so severely.

B. W. Richardson has given a good account of bichromate of potash poisoning. During its manufacture, the air being impregnated with the salt, the slightest abrasion gives it entrance, and an intense destructive inflammation is set up, with suppuration and ulceration, sometimes down to the bone. The glans penis and the septum nasi are liable to be destroyed; and in horses, not only the hair, but even the hoofs fall off. Richardson met with six cases among autotypers. In one, the rash was "like pityriasis rubra," in another there was "acute eczema of the arms and a scaly eruption on the palm like psoriasis, and the other cases were either like psoriasis, eczema, or pityriasis."

Hermann † also describes the ravages (produced both inside

\* Cathélineau, *Annales de Derm. u. Syph.*, vol. vi. (1895), p. 24, and vol. ix. (1898), p. 63, publishes cases and Mewborn is quoted in *Lancet*, June 29, 1901, p. 1842.

† *Brit. Med. Jour. Epitome*, June 22, 1901, from *Münch. med. Wochens.*, April, 1901.

and out) in the manufacture of this much-used but dangerous salt.

*Aurantia, or Hexa-nitro-phenyl-amin.*—This is an orange-yellow dye much used for cheap yellow leather shoes and other goods, and the workers in it are liable to a severe dermatitis on their hands.

In one of my cases the palms were covered with crowded but separate hemp-seed vesicles, and the backs also to a less degree with vesicles the size of a millet seed, and with marked swelling; the diagnosis was easy from the orange staining of the skin. The liquid is sponged on to the leather to be dyed, hence the predominance on the palms. Hellier \* of Leeds records similar cases.

*Arsenic.*—Workmen who prepare skins and furs use lime and sulphid of arsenic, and are liable, besides eruptions such as may follow any irritant, to a persistent ulcer of the fingers, known among French workmen as *Pigeonneau*.†

*Cocus wood.*—Flute-makers who use *cocus* wood are liable to eczemaform dermatitis, probably from a resin in the wood which belongs to the family *euphorbiaceæ*, an order noted for its members exuding irritating and blistering products.

In one of my cases the eruption began two hours after beginning to saw up some *cocus* wood into blocks. His fellow-workmen were affected in a minor degree.

4. *Irritant plants* not used medicinally. Only a few of these can be mentioned, as their name is legion.

In America, ‡ especially in the Far West, the *Rhus venenata* and *Toxicodendron*, popularly called the poison ivy or oak, or poisonous sumach or dogwood, are a perfect scourge to travelers, the irritant, according to Maisch of Philadelphia, being a very volatile acid called toxicodendric acid. The variation in susceptibility to it is very great, some being able to handle it with impunity, while others cannot be in the neighborhood of the plant without suffering severely.

Dr. E. H. Smith of Santa Clara, California, which is the home of the plant, wrote to me the following:

\* *Brit. Med. Jour.*, November 19, 1892.

† Brocq and Landry, *Annales de Derm.*, vol. ii. (1901), p. 305, illustrated.

‡ A case occurring in England is recorded by Nicholson of Hull in the *Brit. Med. Jour.*, March 4, 1899, p. 530, with illustrations of the plant.

"If the skin is wet from perspiration or rain it will be more susceptible, and then persons who have had immunity for years will be attacked.

"It generally begins on the wrists, spreads to the hands, especially between the fingers and around the joints. It often attacks the genitals or face primarily—to which probably it is conveyed by the hands—and spreads thence over the whole body in from eight to fourteen days. In face attacks violent conjunctivitis may occur. It begins by intense itching and a sense of heat, next the skin reddens, and in from two to forty-eight hours an herpetiform eruption appears and great edema ensues, and it requires about two weeks to run its course. The eruption may also be bullous or pustular or combined with the other elementary lesions."

On the subsidence of the eruption several small, whitish, smooth-topped deposits may be left beneath the outer layer of the skin. These, without fresh exposure to the shrub, spread and go through all the characteristic stages exactly as in attacks from direct contact with the plant. Dr. Smith himself went through four such secondary attacks in two months without having been near the plant, and the last attack was exactly like the first. It may be conveyed also indirectly, as by wood cut in the vicinity of the rhus and handled by people who have not been near the plant. It has also been conveyed by a bath brush.

Eczema and furunculosis are mentioned as secondary effects. Dr. Smith scouts the toxicodendric acid theory and invokes a "germ" as the cause. His treatment is to apply a lotion, on absorbent cotton under oiled silk, of sodii hyposulphitis  $\mathfrak{z}\text{ij}$ , acid carbolica  $\mathfrak{z}\text{j}$ , aq. distillatæ ad  $\text{Oj}$ .

I should use the lactate of lead lotion, but many American writers say that the treatment should consist of mildly astringent lotions, such as Goulard water, bland ointments, and dusting powders; but better than all, according to Duhring, is the fluid extract of *grindelia robusta* ( $\mathfrak{z}\text{j}$  to  $\mathfrak{z}\text{iv}$  or  $\mathfrak{z}\text{vj}$  of water). White recommends black wash, to be applied for a quarter of an hour every four hours. Brown advocates bromini  $\mathfrak{m}\text{v}$  to  $\mathfrak{z}\text{j}$  of olive oil or simple ointment. Tannin or sulphate of zinc lotions, and vapor baths are also suggested. The pustular eruptions are best treated with ointments (iodoform or iodol

gr. 3 to 5 to the ounce of simple ointment), or oleate of zinc or lead, spread upon strips of linen, and applied closely and continuously, with rest to the affected parts, especially if they are the hands or feet. These plans generally effect a speedy cure.

*Primula Obconica*.\*—Since this plant has become a common one in conservatories many cases of dermatitis from handling it have been published in the journals, and not a few have come under my notice. Owing to the cause being usually unsuspected by the patient, difficulties in diagnosis not unfrequently arise. A severely itching, papular, erythematous, and vesicular eruption of an eczematous type, or occasionally a bullous eruption, is excited in certain people only, and a red urticaria in a few others. The poison is supposed to reside in the hairs of the plant.

The victims are generally amateur or professional gardeners, and the apparently mysterious recurrence of the eruption each time they handle the plant leads to all sorts of errors in the diagnosis of the cause. The irregular distribution of the lesions and the predominance in exposed parts or in regions frequently touched by the hands will often give a clew to the cause being from without.

The treatment would be the same as for rhus poisoning, for most of the rashes from these causes. Probably lactate of lead lotion would be the most universally applicable, and calamin lotion where the skin is unbroken.

**Feigned Eruptions.**† Besides their legitimate use, various irritants may be fraudulently employed, chiefly by hysterical women, mendicants, soldiers, prisoners, or domestic servants, either with a sordid or morbid object of obtaining sympathy, or to avoid some irksome duties. Unless the physician has a sound knowledge of the effects of true disease, they may give a good deal of trouble, and the impostors are often successful in their object when there is an apparent absence of adequate

\* *Brit. Med. Jour.*, September 28, 1889, and vol. ii., 1890. *Lancet*, ditto.

† A good many examples are to be found in vol. i. (1870) of the *Brit. Med. Jour.*, by the late Mr. Startin. Hilton Fagge, W. Roberts, etc. See also a clinical lecture by Colcott Fox, *Illustrated Med. News* November 2, 1889.

motive. The following points will often aid in detection; but let not the young physician expect credit for so doing, as the friends of the hysterical one are often almost as angry with the discoverer as they are with the perpetrator of the deceit. A circumstance which often confuses the issue is that a genuine lesion, the result of accident or disease, often precedes and suggests the fraudulent imitation.

The eruption or lesion nearly always differs from what may be called the natural eruption it is supposed to represent, and is often unlike any known disease. Thus, if it is an erythema, it is probably sharply defined and irregular in shape, and with a clumsy operator may even be angular in outline. If it is gangrenous and produced by a liquid caustic, in addition to the irregularity it is common to find that some drops have been spilled away from the main lesion, or that it has run down in a streak, or that it has damaged the clothing or stained the fingers or nails. Then the lesions are either single or few in number at least, at each supposed outbreak, though, when the deception has lasted a long time, the number of lesions in the aggregate may be very large. They are usually arranged unsymmetrically, mainly on the left side, especially on the limbs, or at all events in easily accessible positions. The fraud may be betrayed by traces of the special agent employed on the skin or clothing, such as particles of mustard or cantharides, the smell of turpentine, the yellow stain of nitric acid, etc. Spontaneous superficial gangrene, especially in a young woman, should always be regarded with suspicion.

A few examples may be given. A girl of seven was brought to U. C. H. for longitudinal scabbed patches on the back of the phalanges, for which she had been sent to the seaside on several occasions; she confessed that she liked going very much, and stopping her jaunts stopped the lesions, which were probably burns with a match. A girl of eighteen simulated chromidrosis. While she was having a bath, blacklead was found in her pockets. In the case of a servant with a gangrenous patch on the leg, a yellow streak ran round to the calf away from the main patch. The diseases most frequently simulated are erythema, eczema, pemphigus, gangrene, ulcerations, morbid growths or discolorations, changes in the cutaneous secretions, etc.

C. Fox and Sangster \* have each reported a case produced by mechanical means; the patient rubbed a spot with the end of her fingers, moistened with saliva, until a sore was the result. Cases such as these have been reported by Erasmus Wilson and others as "neurotic excoriations," and correctly so, but not in the sense intended by the authors. Sangster † showed such a case at the Congress in 1881, which at the time he thought genuine, but subsequently ascertained to be produced in the same way as his other case already mentioned. Bristowe ‡ also records a case where pieces of skin were snipped out with scissors.

The best chance of stopping these tricks is not to let the patient know that she is suspected, but to put her under secret surveillance until she can be detected *in flagrante delicto*, so that she is convinced the "game is up." Otherwise the accusation will only lead to indignant denials, the *modus operandi* will remain undetected, and she will either persist in her imposture under different auspices, or will take the opportunity of a graceful retreat by getting well under some other doctor's treatment. Thus the diagnosis of factitious origin will appear to have been incorrect.

## DERMATITIS MEDICAMENTOSA. §

*Synonym.*—Drug eruptions.

It is fortunately uncommon for eruptions to be produced by drugs, yet the number that may produce them is considerable. In the majority of instances there is either an idiosyncrasy on

\* *Lancet*, December 30, 1882.

† *Lancet*, June 3, 1882.

‡ *Lancet*, January, 1883.

§ *Literature.*—G. Behrend, "Zur allgem. Diagnostik der Arzneiaus-schläge," *Berlin klin. Wochens.*, vol. xvi. (1879), p. 714. Béranguier, "Des éruptions provoquées par l'ingestion des médicaments," "Thèse de Paris," 1874, p. 45. Morrow on "Drug Exanthemata," etc., *New York Med. Jour.*, vol. xxxi. (1880), p. 244; and a monograph published by Wood & Co., New York, 1887, with bibliography, of which a new edition for the Syd. Soc. has been prepared by Colcott Fox in "Selected Monographs on Dermatology," 1893, with copious bibliography. Van Harlingen, "Medicinal Eruptions," *Amer. Arch. of Derm.*, vol. vi., p. 337—very complete and full of references. Discussion on Drug Eruptions,

the part of the patient, or renal or cardiac disease interferes with elimination, or the dose is large, the medicine long continued, or a combination of these factors is present. Thus, there are many instances where a very small dose has been, and always is, capable of producing an eruption in that particular patient, and in many the susceptibility tends to increase, and in these a larger dose, or perseverance in taking the drug after the appearance of the eruption, may considerably aggravate the form it takes; a partial erythema becoming general, and even hemorrhagic or gangrenous, or a vesicular eruption becoming bullous or pustular. Whilst there are many forms of eruption due to drugs, only two—iodine and bromine, and their salts—are capable of exciting lesions which are special and peculiar. In all the rest the eruption itself follows a recognized type, and it is only from the circumstances under which it occurs that the cause is ascertainable.

In the following account only those eruptive phenomena are considered which are the result of absorption of the drug into the organism either from ingestion by the mouth or rectum, subcutaneous injection, or absorption through a wound or even the unbroken skin, as in mercurial inunction.

Inflammations produced by drug irritants, such as arnica, tartar emetic, etc., are described with lesions produced by other irritants under Dermatitis.

**Antifebrin or Acetanilid** produces a kind of cyanosis when the drug is long continued or the dose is large. The slaty-colored anæmia is very suggestive, and is probably due to a change different to that of venous blood, in a case of poisoning, the blood being dark blue, as in anilin poisoning. Small doses will sometimes produce it. Exalgin and monobrom-acetanilid have a similar effect, the latter sometimes after a small dose. It has been suggested that free anilin is produced.

**Antipyrin.\*** Since this drug has come into common use numerous cases of eruption have been reported. The back of

*Trans. of Internat. Med. Cong. Berlin, 1890.* Also Brooke and C. Fox's papers in *Brit. Jour. Derm.*, October and November, 1890. "Dermatoses produced by Drugs," by Jadassohn. A translation by Elkind forms one of the Selected Essays of vol. clxx. (1900) of the Syd. Soc.

\* *Literature.*—This is very extensive. Morrow's Syd. Soc. Edit. gives

the hands is especially liable to be attacked, and in one of my cases was the only part. The eruption may be erythematous, purpuric, urticarial, vesicular, or bullous. The erythematous is by far the most common, and is often followed by pigmentation.

Spitz collected fifty-two cases, and of these forty-one were morbilliform, four urticarial, and the others papular erythema. It may also be scarlatiniform, in finger-nail patches up to patches the size of a crown-piece, or there may be extensive diffuse redness, or there may also be pearly spots.

The eruption may be general or partial, but symmetrical, affects the chest, abdomen, and back, the limbs and the extensor aspects more than the flexor, but every part, even the palms and soles (Ernst), has been involved in one case or other. Benzler and Ballin\* have had similar cases. In a case of Archer's bullæ formed a ring round the arms, the eruption being preceded by intense itching. The mouth and genitals may also be affected. The morbilliform rash may be associated with oro-nasal catarrh. The patches may be formed by coalescence of one of the papular forms, as in Blomfield's cases, or the smaller patches may arise primarily and closely simulate the macular syphilid, especially when the oral mucous membrane is involved and mucous plaques are simulated, or when the eruption is on the palmar surface as well as the back of the hands.

In one of Blomfield's cases it began inside the knee, and spread from that all over the trunk; the eruption was of a deep red, papular or morbilliform, becoming confluent, but with free intervals of white healthy skin which gave it a marbled appearance, or it enlarged into patches half an inch in diameter; these began to clear in the center, and faded altogether in from five days to a week. There was itching in most cases, moderate desquamation, and some staining left. Acuminate miliaria-like papules, with profuse perspiration, have been noted. It seldom lasts more than five days, and may be followed by desquamation and pigmentation. It generally recurs if the drug is resumed even in small doses. At the same time, in several in-

references to 1892, and Apolant, *Archiv f. Derm. u. Syph.*, vol. xlv. (1898), p. 345, gives a very copious bibliography.

\* Jadassohn, *loc. cit.*, note, p. 229.

stances, the rash faded without the drug being stopped. A. Fournier records three cases in which the penis turned black after antipyrin from pigmentation following an erythematous eruption. The erythematous, urticarial, and slighter vesicular eruptions may occur after moderate doses, but the purpuric and bullous eruptions have generally been after large doses. By rubbing in a ten per cent. ointment Wechselmann produced in susceptible patients the same eruption as was produced by the internal administration of the drug. Strauss records a case of purpura limited to the back and lower limbs, but very large doses, producing collapse, had been administered; while in most of the other cases, moderate doses, such as twelve grains, had been given. Veiel \* records a case of bullous eruption in a man of thirty-three which appeared on the glans penis, between the toes, on the lips and hard palate, while it was red and wheal-like on the palms and soles. Petrini's † case was still more developed, some of the bullæ being the size of a five-franc piece, and the eruption was nearly universally distributed.

The physiological action of the drug is of itself a predisposing factor. It produces paralysis of the vaso-motors followed by dilatation of the cutaneous vessels. After large doses it occurs free in the urine. Mibelli has demonstrated antipyrin in the liquid of bullæ by perchlorid of iron, which turns it red, and Tonnel and Raviart by iodine dissolved with iodid of potassium.

**Argyria.** See under Pigmentation.

**Arsenic.** ‡ This, being a powerful irritant, is liable to produce inflammatory eruptions when in direct contact with the skin, but

\* *Archiv f. Derm. u. Syph.*, vol. xxiii. (1891), p. 33.

† *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 170.

‡ *Literature*.—Imbert-Gourbeyre, "Histoire des éruptions arsénicales," *Moniteur des Hôp.*, 1867, p. 317, quoted by Van Harlingen; also "De l'action de l'arsenic sur la peau," Paris, 1871.

J. Méneau of Bourboule, *Annales de Derm. et de Syph.*, vol. vii. (1897), p. 305. With copious bibliography and good abs., *Brit. Jour. Derm.*, vol. ix. (1897), p. 368.

"The Action of Arsenic on the Skin, as observed in the Arsenical Beer Epidemic," H. G. Brooke and Leslie Roberts, *Brit. Jour. Derm.*, vol. xiii. (1901), p. 122, highly illustrated.

"An Account of the Epidemic Outbreak of Arsenical Poisoning in

as it is only like other irritants in this respect, these eruptions need not be gone into here. Eruptions of various kinds may, however, arise from its internal administration. Imbert-Gourbeyre, Méneau, Brooke, and Roberts have written very good monographs on this subject. Urticaria is one of the most common forms of eruption; according to Imbert-Gourbeyre, four minims three times a day for three days produced it in one case; Méneau, however, does not confirm this.

Imbert-Gourbeyre states that the following eruptions may occur: erysipelas-like dermatitis of the face and eyelids, often becoming vesicular; a papular rash on the face, neck, and hands morbilliform or like a papular syphilid. The papules are few, small, and separate at first, but subsequently in groups; these enlarge and coalesce into patches, which may be large and disseminated on the neck, or there may be pin's-head-sized papules on the forearms, with itching. There may also be erythematobullous, pustular, ulcerative, or gangrenous eruptions, but they have, as a rule, only followed large and toxic doses, but Bazin, after giving one-thirtieth of a grain once a day for two weeks in a case of eczema, observed an eruption limited to the right flank, consisting of discrete papules and pustules, an ulcer one centimeter broad, and two ecthymatous lesions, but this may have been a severe zoster only. Gangrenous lesions especially affect the genitals, but are not confined to them.

Méneau adds to this list pruritus and general or local desquamation, scarlatiniform erythema, petechiæ (rare); vesicular eruptions \* simulating scabies, eczema, or miliary vesicles.

Herpes zoster has followed the administration of arsenic in so many instances, as first pointed out by Hutchinson, who has been corroborated by so many authors, that it can be no accidental concomitant. Thus Railton in ten cases of therapeutic dosing for chorea noted three cases of herpes zoster, and several have fallen under my own notice. Sturk produced two attacks of facial zoster by giving arsenic. Méneau says the

1900," E. S. Reynolds, *Med. Chir. Soc. Trans.*, vol lxxxiv., 1900. The nerve symptoms have a prominent place, but there are some valuable observations on the skin lesions.

\* Ohmann-Dumesnil records a case of vesicular eruption on the face and buttocks from a single large dose of arsenic. *Abs. Brit. Jour. Derm.*, vol. xiii. (1901), p. 192.

vesicles are smaller than those of ordinary zoster, and may be accompanied by erythema, eczema, edema, desquamations, etc. I am inclined to think the distinction fanciful, and believe that arsenical zoster is not different to ordinary zoster; and as arsenic is known to be capable of producing peripheral neuritis and probably inflammation of the ganglion also, the explanation is not far to seek. The very large number of cases in the Manchester epidemic is conclusive of the relationship and gave Reynolds the first clew. Probably the most common results of prolonged or excessive administration of arsenic are general pigmentation and keratosis, preceded and accompanied by hyperidrosis of the palms and soles.

Pigmentation following arsenic is now well known.\* Reynolds says that it is always preceded by erythema and followed by pigmentation, but I do not think this is always so. At the commencement, as can be well seen on the abdomen, the hair follicles themselves escape, so that there are white dots on a dark ground, which is very characteristic, but ultimately the discoloration is uniform. The color is sepia or yellowish-brown, occasionally almost black. There are usually lighter areas interspersed in the diffuse form. It may also occur in dots or in patches of variable size. In children it may occur even with moderate doses, but in adults it is only after large doses or long-continued use. The neck, axillæ, abdomen, and groins are the parts first involved, and the exposed parts are less pigmented than covered parts. Gubler thinks it is true pigmentation, and not due to mere deposition of the metal in the tissues. Against this may be cited the fact that when psoriasis is cured by arsenic, marked pigmentation often ensues, strictly limited to the sites of previous eruptions. Recent pigmentation tends to fade, but when due to very prolonged administration much of it may be permanent; I have seen pigmentation of several years' duration. Brooke and Roberts show that arsenic is deposited in the epidermis.

Keratosis, or thickening of the horny layers of the palms and soles, begins round the sweat follicles, so that the surface is covered with small nodular shagreen-like or warty thickenings.

\* Author's Atlas, Plate XXXVII., illustrates stages of pigmentation and early keratosis, and Plate XLIV., Figs. 3 and 4, a more advanced condition of the latter.

Gradually the intervals are filled up, and uniform thickening of the horny layer or keratosis is established just like the congenital form. An analogous thickening occurs over the knuckles and elbows, a whitish powdery appearance being produced, with slight resemblance to psoriasis.

In the more severe cases, such as in the Manchester epidemic, the palms and soles were red, tender, and there was numbness, tingling formication, and anesthesia (Erythromelalgia). General itching was often present and other symptoms of peripheral neuritis.

Hutchinson \* has drawn attention to the occurrence of epithelioma of the palm due to arsenic. I have had an opportunity of observing how this occurs. The warty thickening already described on the palms becomes more pronounced in some of the lesions, and epithelioma gradually develops on the papillary overgrowth. This in one of my cases occurred forty years after the arsenic had been given up, and also illustrates how persistent the keratosis may be; but slight degrees of it may disappear. Arsenic is very liable to aggravate acute forms of skin inflammation.

The nutrition of the nails is altered; they are whiter, cracked, thin, and towards the tip almost papery and much flattened (Reynolds). In some cases there were transverse ridges.

**Belladonna.** A diffuse erythematous blush and a scarlatini-form erythema, chiefly affecting the face and neck, have been described as due to belladonna, occurring chiefly in children, even when small doses have been taken. I have seen large red patches paling on pressure, and the whole face and trunk suffused deep red in cases of belladonna-poisoning, but have rarely met with it after medicinal doses, although I have prescribed it in twenty- or thirty-minim doses of the tincture, in hundreds of cases of whooping cough. In a case at St. George's Hospital, kindly shown me by Dr. Whipham, a man of forty with supposed typhilitis wore a belladonna plaster for a week, and then took two seven-drop doses of the tincture; the next day the hands and feet were swollen, red, and tense. When I saw him the palms were deep red with thickening of the epidermis, the

\* Hutchinson's smaller Atlas, Plate XX. Plates XVIII. and XIX. show keratosis of the elbows and hands.

soles were less affected; over the knuckles and all points of pressure and redness was intense, and capillary pulsation could be demonstrated by slightly flexing the joint. Dreyfous records a scarlatiniform eruption and papular erythema, with intense itching, after taking two grains of the extract in the course of five days, followed by a vapor bath.

External applications of belladonna preparations frequently excite erythematous, papular, and vesicular eruptions. In one of my cases, on two occasions, belladonna fomentations made with the glycerin of belladonna extract, and applied to a gouty foot, produced a copious and severe outbreak of vesicles and bullæ on the foot. The emplastrum belladonna often excites an itching erythematous or even eczemaform eruption; and Tom Robinson \* records a case in which splashes of fresh belladonna juice or atropin powder set up a smart eczemaform eruption in a pharmacist's employee.

**Benzoate of Soda.** Nicolle and Halipré † record a case of erythematous patches and papules of small size and elevation; after three doses of fifty centigrams they came chiefly on the extensor aspect of the wrists, elbows, and knees, did not spread after the drug was stopped, and began to fade in twenty-four hours.

**Boric Acid.** Molodenkow ‡ of Moscow washed out a pleural and a lumbar abscess cavity with a five per cent. solution for an hour, a large quantity of the drug being employed, and "the next evening erythema appeared on the face, and spread on the third day to the neck, chest, and abdomen, then to the thighs, small vesicles appeared on the face and throat, the sight became dim, and both patients died, conscious to the last, one on the fourth, the other on the third day." Bruzelius § reports a similar case, but with recovery, after rectal injections of two pints of a four per cent. solution. Another case is reported by Johnson of Norway. Vincent reports two cases, both in subjects with

\* Case of cutaneous antipathy to atropin. *Brit. Med. Jour.*, September 26, 1896, p. 881.

† Quoted in abs. in *Mal. Cut.*, vol. x. (1898), p. 709, from *Normandie Médicale*, 1898.

‡ Molodenkow, quoted in *Lancet*, May 6, 1882.

§ Bruzelius, *Hygieia*, 1882.

renal disease, Corlett saw six cases when treating diphtheria with 3j doses of the drug, and G. Lemoine met with a case with febrile symptoms from dressing a bed-sore with the powdered boric acid.

Burning of the skin, which swelled, looked charred, and subsequently exfoliated, followed the packing of the upper third of the vagina with boric acid in a case of Welch's. Fordyce \* gave thirty grains daily for a month for cystitis: a multiform erythema developed on the trunk and spread over the extremities; there was extreme and painful edema of the eyelids and conjunctivitis. The drug can be detected in the urine,† and as it is commonly used in milk and other foods as a preservative, this may be useful for diagnosis.

**Borax**, given internally, in five-grain doses, for epilepsy appeared to produce psoriasis of the usual type in three cases under Gowers. This experience is confirmed by Liveing. Féré and Lamy record two cases of eczema with gastric disturbance excited by it, but both patients had seborrhea of the scalp, and had had previous attacks of eczema. There is also a peculiar dryness of the skin and mucous membranes, the latter being reddened and denuded of epithelium, and sometimes the hair falls out.

Féré ‡ also records pink or red confluent plaques followed by fine desquamation. Papular eruptions with or without pruritus, which may become confluent and be followed by desquamation. Petechiæ are sometimes seen.

A diffuse, erythematous, morbilliform eruption followed the administration of "tartarus boraxatus" § in large doses for two weeks by Alexander.

**Bromine and Bromids.** || The eruptions met with in connec-

\* *Amer. Jour. Cut. Dis.*, vol. xiii. (1895), p. 499.

† Make the urine alkaline by soda, evaporate to a syrup, mix with some pure white sand, evaporate to dryness. Powder the residue, cover it with alcohol, and add a few drops of strong sulphuric acid. On igniting the alcohol it will burn with a green or green-bordered flame.—Morrow, *Syd. Soc. Ed.*, p. 403.

‡ *Brit. Med. Jour. Epitome*, January 6, 1895, "Borism."

§ Tartarus boraxatus is supposed to be boric cream of tartar. The case was published in *Viertelj. f. Derm. u. Syph.*, vol. xi., p. 110.

|| Author's Atlas, Plate XXXV., shows an extreme case from long-continued ingestion of the drug of the confluent form. It also illustrates

tion with these drugs are pustular, erythematous, urticarial, bullous, and squamous. The description of bromid of potassium eruptions applies to those produced by any of the other salts of bromin.

The great majority are pustular, and these may be discrete, acneiform, furuncular and confluent, or anthracoid. The discrete acneiform is very common upon the face, chest, or back, the scalp, and round the hair follicles of the thigh and leg. The pustules are yellow, on a raised red base, from a hemp seed to a pea in size. The confluent form is less common. Some of the earliest cases were reported by Cholmeley, Lees,\* and myself,† and they are now too numerous to specify. It is very distinct from all other eruptions except those of iodid, which are often very similar, but usually distinguishable. Convex, crimson, much-raised, circumscribed, oval, or roundish elevations are formed on the face and limbs, rarely on the trunk. The top of these elevations is covered with minute, closely aggregated, yellow, pustular points, almost like a carbuncle, but there is no red border or brawny induration, and the swellings are soft, almost fluctuating, and dry into a scab in the center, even while there are pustular points near the periphery. Ultimately a yellowish or black (from hemorrhage), irregularly sulcated scab is formed, and when this is removed an irregular ulcer may be left, but, as a rule, if the drug is not continued the lesions dry, the swelling subsides, and the scab is thrown off, without even leaving a scar, though the skin has a purplish or brownish stain on the site of the eruption for a considerable time. There are nearly always some discrete lesions as well. One peculiarity is its tendency to commence in scar tissue; in three instances, in my own experience, it was on the site of the vaccination scars, and in one limited to that position, the lesion, with its central scab, being very like a vaccination pustule of about the tenth day; in the case of an adult epileptic, the eruption was limited to the scar of an old strumous ulcer of the leg, in another it was on the scar of a recent burn. Another point is that the eruption

lesions, which have been called by various observers *granulomatous*, *papillomatous*, *ulcerative*, and even "epithelial ulcer."

\* *Path. Soc. Trans.*, vol. xxxviii. (1877), p. 247, with colored plate.

† *Ibid.*, vol. xxix. (1878), p. 252, with colored plate. Both of these give a very good representation of the eruption.

continues to come out, and sometimes does not even commence, until after the drug has been stopped for some days, or even weeks; and Cavafy showed a case at the London Dermatological Society in which there was an eruption very like the "Iodid Hydroa" of the Sydenham Society's Atlas, and the patient had not taken bromids for three months previously.

Infants are more liable to confluent eruptions than adults, and it has been thought that a combination of iodid with bromid increases the liability to them. Deficient kidney elimination is also a factor both for this and iodid eruptions, but very small doses will produce the lesion where there is an idiosyncrasy, as little as a grain three times a day in an infant given by the mouth, and it has occurred in sucklings whose mothers were taking the drug. As a rule, however, large doses are more likely to produce it; hence it is common in France, where doses of ten grams and upwards are not infrequently given. Papillary hypertrophy sometimes follows, as well as accompanies, the eruption, as I have myself seen; while Veiel describes large prominences on the face and legs, like ordinary warts, and not consecutive to other lesions. Fatal cases are known, but due to the general effects of the drug, not to the skin lesions. Two are reported by Hameau and Eigner, and were women, *æt.* twenty-two and nineteen respectively. Both had been taking enormous doses for a year previously. In two epileptics reported by Greenlees only twenty-five grains three times a day had been given for a few weeks.

A furunculoid eruption, and groups of indolent acneiform pustules on the legs, which left scars, have been described by Voisin. Both he and Van Harlingen describe ecthymaform pustules, but these may well be accidental from pus inoculation.

Erythematous eruptions may be diffuse but limited to the lower extremities (Veiel), in patches, finger-nail to pea-sized, in various parts of the body, roseolous (Bedford-Brown) and papular, but this is usually an early stage of the pustular form. Further erythema nodosum, or something very like it, is described by both Voisin and Veiel, occurring on the legs. In a case of Horrocks\* similar lesions came on the legs and extensor surface of the arms and forearms, and subsequently indistinct vesicles formed upon them.

\* *Path. Trans.*, vol. xxxiv., p. 272, and also p. 273.

In this form of eruption, as I have seen it, the lesions are more brawny and defined, and less tender than in true erythema nodosum, and not necessarily situated over the superficial bones.

Echeverria describes a case with a diffuse, papular eruption over the elbows, knees, legs, and back of hands. He says that a brownish discoloration of the forehead and neck is also to be met with, and that painful subcutaneous suppuration may occur. Duhring saw a diffuse erythema of the face and neck, accompanied by maculo-papules, flat papules, and pustules.

All the eruptions are probably only stages or modifications of the ordinary pustular eruptions. Urticaria is spoken of as of doubtful occurrence; it may occur after iodid, and probably after bromid. Saundby's case was complicated by the patient taking thirty minims of hydrobromic acid at the same time as the bromid.

Veiel and others describes a squamous eruption like seborrhea, and Voisin records a moist eczema of the legs with pityriasis capitis. A bullous eruption is recorded by Wigglesworth\* in an epileptic lady who had taken bromid for some time. Slightly acuminate bullæ came out on the trunk, from the size of a split pea to that of the finger-tip; some were hemorrhagic; they ruptured and left an excoriated surface; the rash disappeared soon after the discontinuance of the bromid.

A *bromiform* eruption in a child consisted of papules, pustules, superficial and raised ulcers, and papillomatous tumors of the characters already described for bromids; twenty-three grains spread over twenty-five days had been given for pertussis.†

Infiltrated granulomatous patches occasionally occur, as in Pini's‡ case, similar to what are rather more frequently seen after iodids.

**Anatomy.**—Much dispute has arisen as to whether the sebaceous glands are the seat of the lesion. The anatomy of the pustular lesions has been investigated by Neumann,§ S. Mackenzie,|| jointly by C. Fox and Gibbes, Jacquet,¶ etc. Neumann found that the inflammation began first round

\* *Arch. f. Derm.*, vol. v. (1879), p. 371, in discussion on iodid bullæ.

† Julius Müller, *American Medico-Surgical Bulletin*.

‡ *Archiv f. Derm. u. Syph.*, vol. lii. (1900), p. 163, illustrated.

§ *Viertelj. f. Derm. u. Syph.*, 1874, p. 395.

|| *Path. Trans.*, vol. xxxv. (1884), p. 400, with lithographs.

¶ *Med. Soc. Trans.*, vol. ix. (1886), p. 51.

the sebaceous follicles, and later the hair follicles and sweat glands were involved, while there was considerable hyperplasia of the epithelial layers. S. Mackenzie found that there was : (1) active hyperemia of the corium, with exudation of colored and colorless corpuscles, especially in the neighborhood of the papillæ ; (2) minute abscesses in the vicinity of the hair follicles and sebaceous glands ; (3) small multilocular vesicles in superficial layers of the epidermis. Hence he infers that the fluid part of the exudation tends to reach the surface and form bullæ more rapidly than the corpuscular part, which accumulates near the hair follicles and sebaceous glands, and forms points of suppuration. Fox and Gibbes found that the changes were chiefly perivascular, but involved the sweat-gland ducts, and regarded any changes near the sebaceous glands as accidental. Séguin found great hyperplasia of the prickle-cell layer. On the whole, it seems probable that the seat of the lesions is at the vessels, and that the glands or follicles are involved simply because they are highly vascularized, but that they are not always involved, or in any way necessary for the production of the lesions, is shown by their occurrence in, and even preference for, scar tissue.

*Diagnosis.*—The discrete lesions differ somewhat from ordinary acne, they suppurate more freely, and the contents are more distinctly purulent and of thinner consistency; the red base is usually of a dusky hue, and there has been no antecedent comedo. These differences are just sufficient to excite inquiry as to whether bromid is being taken. The confluent form is very distinctive. The aggregation of pustular points on a raised red plateau, too soft for a carbuncle, and comparatively painless, and perhaps the position of the lesions, render the diagnosis possible from everything but the similar iodid eruption. Moreover, confluent pustular lesions are exceptional in iodid eruptions and common in bromid rashes. On the other hand, bulbous eruptions are rare after bromids and comparatively common after iodids.

*Treatment.*—Stop the administration of the drug, give liq. arsenicalis in  $\mathfrak{m}ij$  to  $\mathfrak{m}v$  doses three times a day, and apply subacetate of lead lotion two per cent., or salicylic acid gr. 1 to  $\mathfrak{z}j$  of water, on lint covered with oiled silk, as recommended by Prowse. Where, as in epilepsy, it is necessary to go on with the bromid, the addition of a drop or two of liq. arsenicalis to each dose of the mixture will materially control, if it does not entirely prevent, the eruption; and in most cases, then, it is safe to stop the bromid for two days in each week. The liability to pigmentation and keratosis from the long-continued administra-

tion of arsenic must be borne in mind. I have repeatedly seen both in chronic epileptics.

Féré tried to produce intestinal antiseptis by giving naphthol  $\beta$  and salicylate of bismuth, and the fungating eruption disappeared without the bromid being stopped. Salol gr. 5, *ter die*, would have the same effect, and would not be injurious, as arsenic is, when taken for long periods.

**Cannabis Indica.** Nevins Hyde\* reports a case, the only one on record, in which a grain of the extract, taken overnight, produced the next morning a general eruption consisting of disseminated vesicles, with clear contents, from a pin's point to a pea in size, attended with considerable itching, and subsiding without treatment in a few days, leaving a transient pigmentation.

**Cantharides.** Erythematous and papular eruptions in various parts of the body, but especially in the genitals, have followed the internal use of cantharides. Generalized vesicular and other eruptions starting at, or at a distance from, the site of a blister are analogous to what often occurs after irritant dermatitis from any cause.

**Capsicum.** An erythematous eruption may sometimes follow the ingestion of large doses, and Allen reports a case of papulo-vesicular eruption all over the body after its administration internally.

**Chinolin†** has been given in typhoid fever. In six out of twenty cases Draper observed an erythematous rash. Henchen and Laache publish cases.

**Chloral Hydrate.** Various eruptions, mostly of erythematous type, have resulted from the use of chloral. The most common is the kind of which Gee reports two cases: a dusky red papular eruption, surrounded by a more diffuse redness of the face and neck, and patchy or mottled red spots on the extremities, especially near the articulations, which were all more or less affected. The eruptions are generally of short duration, and there is no itching or constitutional disturbance as a rule, but there are ex-

\* *New York Med. Record*, May 11, 1878.

† *Morrow, Syd. Soc. Ed.* Note by Fox, p. 455.

ceptions, as in Köbner's case, where there was burning and itching and desquamation, followed by persistent general erythema with infiltration of the skin. Letten's case of poisoning had itching and round or conical yellow papules which lasted a week.

General scarlatiniform eruptions, followed by desquamations, are less frequent. The oral and pharyngeal mucous membrane is also red, increasing the liability of its being mistaken for scarlatina, as a rise of two or three degrees of temperature is not uncommon. The Chloral Committee of the Clinical Society \* had the following skin lesions reported to them: A defective circulation of the hands, with blueness, and, in one case, a line of ulceration round each nail; a bullous eruption called pompholyx; an erysipelatous redness of the face; intense redness and flushing of the face and scalp; a large patch of papular efflorescence of a purplish-red color; a lichenoid eruption and ulcers; and itching of the legs without eruption. In nearly all these cases the drug had been taken for some time, often in large doses. Stimulants are said to increase the eruption. In a case of Kirn's the eruption began as discrete red papules, which became confluent; and as the drug was not stopped, it went on to vesicles, pustules, and scaling of an eczematous type, at first, and then diffuse desquamation, shedding of all the nails, axillary abscesses, and a continuous rise of temperature reaching to 106° F. The same author and Crichton Browne record purpura and petechiæ following its prolonged use, in one case leading to death; and deep ulcer and vesication over points of pressure has been observed by Reimer. Involvement of the oral mucous membrane, tongue, and conjunctiva has been recorded from congestion to blistering and ulceration.

Urticaria has also been met with by Gaucher, Chapman, etc., of course, with itching and burning. According to Barbilion, any form of alcohol given with it, especially in children, greatly increases the liability to eruptions. It has been said that neurotic subjects are more sensitive to it, but they are just the people who take it most.

**Chloralamid.** Pye-Smith † had a case of a brewer's cellar-

\* *Clin. Soc. Trans.*, vol. xiii. p. 121.

† *Ibid.*, vol. xxiii. (189c), p. 137, with colored plate.

man, with aortic disease, who took two forty-grain doses every night for twelve nights. On the thirteenth day a diffuse, bright red scarlatiniform eruption appeared on the face and soon became universal, including the mucous membranes. The temperature reached 103° F., and there were other febrile symptoms, with running at the nose and eyes. The eruption lasted a week, and was followed by large flaky desquamation.

**Chlorate of Potassium.** Stelwagon \* reports a case in which a "fiery erythematous and papular eruption," similar to erythema multiforme, and without subjective symptoms, followed the use of tablets of chlorate of potassium on four occasions, when about one hundred grains in all had been taken. Brouardel and Lhôte noted bluish spots on the skin, sometimes a general cyanosis and sometimes an icteric tint, where poisonous doses of chlorate of potassium had been given.

**Chloroform.** Morel-Lavallée † records three cases in which purpuric spots were formed under observation during the early stage of administration of chloroform by inhalation.

According to Dudley Buxton, an erythematous eruption may follow both chloroform and ether, beginning as patches and becoming diffuse on the neck and chest. It only lasts a few minutes. Probably purpuric spots are only an occasional outcome of this erythema.

**Cod-liver Oil** is said by Lewin to have produced a vesicular eruption, and Farquharson speaks of its causing acne.

**Codeia.** A widespread erythematous eruption ensued after this drug was given by V. Essen. ‡ The first attack was in spots, but on a second occasion a diffuse erythema all over the body followed a dose of 0.2 of a gram, or 3-10 of a grain.

**Copaiba** produces in many people several forms of eruption, mostly of erythematous type, coming chiefly on the hands, arms, feet, knees, and abdomen. It may follow quickly on the first

\* *Amer. Med. Record*, July 21, 1883.

† *Ann. de Derm. et de Syph.*, vol. v. (1884), No. 2, p. 78.

‡ *St. Petersburg med. Wochensch.*, No. 17, 1894.

dose, or only after some quantity has been taken, and may be general or partial in its distribution. It fades rapidly if the drug is stopped, desquamation following only when the eruption is kept up by continued administration. The most common and characteristic rash consists of rose-colored, irregular patches, grouped or discrete, and only just perceptibly raised above the surface. In a case of my own the rash was exactly like scarlatina, extending only down to the groins, while on the thumbs and forearms there were small vesicles or papules becoming vesicular. The eruption came out after taking six copaiba capsules in two days, and a fortnight later the same quantity had the same effect, but with the eruption even worse than before. Professor Neumann excised a part of the skin in such a case, and examined it microscopically. The papillary layer was normal, and the affection had its seat chiefly around the blood-vessels, the sebaceous glands, hair follicles, and sudoriparous glands, just in the same way as in measles.

Urticaria and a miliary papular eruption have been observed, and Hardy describes a case where the first administration produced rose-colored, elevated patches, and when again given after an interval, and taken for twelve days, a pemphigoid eruption ensued, with abundant secretion and desquamation, lasting six weeks, and resembling pemphigus foliaceus; anasarca, without albuminuria, was also present. Sequeira \* reports a case which began with erythematous patches, and in a few hours large bullæ appeared on the legs; eight capsules only had been taken. Copaiba imparts to the skin secretions a peculiarly disagreeable odor.

**Cubebs.** One case is reported by Bérenguier, where an electuary produced a general millet-sized, papular erythema, which coalesced into small patches in some places. It lasted two days, and was followed by desquamation.

A combination of copaiba and cubebs, in a case of Mauriac's, led to a scarlatiniform and morbilliform eruption, succeeded by a central ecchymotic patch inclosed in two concentric circles, the outer a deep red, the inner pale rose color, the whole slightly raised. The ecchymoses were more marked on the lower limbs.

\* *Brit. Med. Jour.*, vol. ii. (1899), p. 1108.

**Digitalis.** Traube is said by Behrend to have observed in one case a scarlatiniform and in another a papular erythema, after the ingestion of digitalis. Schuchardt also met with a universal papular eruption twice in the same person; and Morrow relates a universal erythematous eruption followed by giant urticarial plaques and a high temperature. Desquamation followed in large flakes, and complete shedding of the hair and nails. Friedheim describes papules of a dull red.

**Dulcamara.** Erythematous, urticarial, and red scaly eruptions have been observed.

**Ergot.** Skin phenomena in connection with "ergotism" occur more frequently from eating ergoted rye in bread for long periods than from medicinal ingestion, but Meadows records two cases in which redness and swelling of the face and arm followed the administration of ergot on three occasions. Petechiæ, vesicular, pustular, furuncular eruptions have been observed, and circumscribed gangrene where the peripheral circulation is weakest is well known. Frankenberg, quoted by T. C. Fox, in an endemic outbreak records bullæ, miliaria, eczema, boils, urticaria, and loss of scalp, hair, and nails.

**Guarana.** Fox quotes Mattegazza as describing urticaria from the use of guarana.

**Guaiacum.** Murrell \* described a miliary erythematous eruption very like a copaiba rash on the arms and legs with intense itching from this drug.

**Iodin and Iodids.**—The eruptions that may be produced are pustular, vesicular or bullous, purpuric, erythematous, and urticarial; and also anthracoid, sarcoma-like, vegetating, infiltrated plaques.

The pustular eruptions are the most characteristic, and, like the bromid which they closely resemble, are discrete or confluent. The discrete lesions are, as a rule, much smaller than those of bromid; they are often simple pustules without any raised red base, and when they have one, are more acuminate

\* *Philadelphia Medical Bulletin*, January, 1891.



IODIDE ERUPTION DUE TO A POPULAR "BLOOD MIXTURE."

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than those due to bromid. When confluent, they may be exactly like bromid lesions, and are called anthracoid by Besnier; or they may have clearer contents, tending more in the bullous direction than the bromid form. Confluent cases have been met with by Duhring, Da Costa, myself, and others, but they are much rarer than the corresponding bromid eruptions. There are always discrete lesions as well, in greater or less numbers, and the distribution, like the bromid rash, is chiefly on the face and limbs, especially round hair follicles.

A further development of these confluent eruptions is seen in the so-called vegetating cases, in which an apparently papillomatous condition is developed. This papillomatous appearance is rare in iodid eruptions as compared with those of bromid, in which it may be often seen. It is not a true papilloma structurally, being mainly epithelial growth upwards, and subsides spontaneously, but slowly, if the drug is discontinued. Norman Walker \* reports a highly developed case from Unna's clinic, but with a single lesion on the nose. It was scraped away after only four days' observation. Hallopeau and Feulard have each recorded a case where true papillomatous development occurred on the cicatrices of an iodid eruption.

In two cases of Pellizzari, quoted by Morrow, "there were large inflammatory nodular masses varying in size from a nut to a fist, seated in the subcutaneous tissue, accompanied by high fever, and followed by abscesses which left cicatrices."

In Fordyce's case † the lesions became larger than a man's fist, but, unlike Pellizzari's, did not suppurate. These sarcoma-like lesions are possibly only extreme developments of cases like Pellizzari's.

In Hutchinson's case ‡ large red tumors, many of which broke down and ulcerated, appeared all over the body, limbs, and face, and killed the patient. Hutchinson thinks they are true sarcomata.

The photograph § and history of a case were sent to me by

\* *Lancet*, March 12, 1892. He gives references to most of the previous cases. His histological examination is in the *Monatsh. f. Derm.*, vol. xiv.

† *Jour. Cut. and Gen.-Ur. Dis.* vol. xiii. (1898), p. 498.

‡ Hutchinson's smaller Atlas, Plates III. and IV.

§ The photograph from which I made the diagnosis is reproduced in Hutchinson's *Archives*, vol. xi., April, 1900, p. 160. Some other inter-

Taylor of Liverpool, in which, in the course of three weeks, a copious crop of nodules of various sizes came out over the face and neck. The epidermis was tightly stretched over the nodules, which were hard and of the same color as the surrounding skin. The outbreak was traced to Clarke's Blood Mixture, a quack medicine well known to contain iodid of potassium.

In a case of Neumann's with advanced Bright's disease the nodules broke down into crateriform ulceration, and post-mortem extensive ulceration of the pyloric region of the stomach was discovered. In the case of a doctor, whom I saw with Colcott Fox, there were red infiltrations, firm to the touch, raised about one-eighth of an inch above the surface, and situated on the back of the hands and wrists; judging by the plate and description it was very similar to the bromid lesion described by Pini.

*Vesicular and bullous* are much rarer than pustular eruptions. John O'Reilly, and later Bumstead, were the first to call attention to them; Tilbury Fox \* described two cases; and Nevins Hyde, † after recording a case, gives the bibliography up to date of this form. Hyde quite correctly stated that there are pseudo-bullous and truly bullous types.

The *pseudo-bullous* is probably the more common form. It begins as papules, and in most of the cases the vesicular or bullous part is seated on a solid base, and the bullous character is more apparent than real. In a case of Duckworth, which looked herpetic, no fluid escaped on puncture; and one of my own, which to the eye was bullous, ‡ proved to be solid on puncture, a drop of clear fluid only escaping on pressure. In one of my cases of this form the eruption was limited to the buttocks. Duckworth also observed in one case that, as in the bromid rash, the lesion was seated on scar tissue.

In Lindsay's case, in the Belfast Hospital, after only seven and a half grains, the patient had headache, nausea, severe itching, and an outbreak of bullæ, surrounded by two concentric

esting cases are also there recorded. In one there were elevated soft bluish-red nodules from a pea to an olive in size, with an erythematous blush round them.

\* *Clin. Soc. Trans.*, vol xi. p. 40. with colored plate.

† *Amer. Arch. of Derm.*, vol v. p. 333.

‡ Author's Atlas, Plate XXXVI.

rings, the outer as large as a crown piece; the trunk, upper limbs, and face were thickly covered, while the lower limbs were almost free.

In Hallopeau's case bullæ with purulent thickish contents came out on the mucous membranes of the tongue and conjunctiva as well as on the face and arms; subsequently condylo-matous vegetations appeared, and cicatrices with bands were left. He has had another case since.\* Taylor also records three cases in which vegetating lesions came on the site of the bullæ.

What Hutchinson † calls **iodid hydroa** is a more distinctly bullous eruption. I had a somewhat similar case, in which bullæ came out thickly over the face and arms, but each had a rather broad red areola, and there was considerable swelling of the face. A very severe case, which hastened the patient's end, is recorded by Morrow; ‡ and another case, fatal in eight days after thirty grains of the iodid in divided doses, is recorded by Wolf of Goritz, § in which there were papules, pustules, and bullæ in the face and all the visible mucous membranes. I saw a well-marked case affecting the face especially, which was sent into hospital as a case of smallpox. In Wolf's, Morrow's, and my cases, there was renal and cardiac disease.

Mayer examined the contents of a bulla and found a little iodine in combination with an alkali, while the urine was free. O. Rosenthal || found increase of eosinophiles, staphylococci, and diplococci, and Sabouraud's micro-bacillus.

*Erythematous Eruptions.*—Patches may occur on the face, fore-arms, and chest.

A papular erythema after small doses is recorded by Maieff of St. Petersburg.

Diffuse erythema has occurred; one case, a woman, æt. fifty, is reported by B. A. Rugg. ¶ After taking four grains every

\* "Une forme nécrotique bulleuse et végétante d'éruption iodique," Hallopeau et Fouquet, *Annales de Derm.*, vol. ii. (1901), p. 541.

† *Syd. Soc. Atlas*, Plate XXXIII.

‡ Morrow, *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. iv. (1886), with colored plate.

§ *Berlin klin. Wochenschr.*, quoted in *Lancet*, October 23, 1886.

|| *Archiv f. Derm. u. Syph.*, vol. lvii. (1900), p. 3. Colored and histological plates and numerous references.

¶ *Lancet*, June, 1879.

four hours for some days, large red papules, with a shotty feel, came on the wrists and forearms, and from this a uniform erythema, followed by free desquamation, spread all over the body.

Béranguier described a scarlatiniform eruption on which small discrete vesicles developed.

Urticaria is also exceptional. Jordan Lloyd had a case in which a dose of three or four grains produced general urticaria in three hours, which was gone by the next day. Taylor of New York showed a case in which the urticaria was limited to the exposed parts, and on the second day clear vesicles came out round the wheals. Pellizzari had several cases with urticaria and papular erythema, phlyctenulæ with purulent contents developing on some of the wheals. Other similar cases are on record.

Of similar nature are the cases of edema following iodids. It may occur in the orbit, or even in the glottis, of which Groenow\* collected nine cases. Dyspnea, requiring tracheotomy for its relief, may ensue.

*Erythema Nodosum.*—Indurations, with or without reddening of the skin over them, or in the latter case very like erythema nodosum, may occur after iodids as well as bromids. In a case sent to me by my colleague, Raymond Johnson, there were subcutaneous oval ill-defined tumors over the ribs, over two inches long, firm, and the skin over them was normal.

An eruption like erythema nodosum is reported by Talamon, but it was on the buttocks, front of the thighs, the calves, and on the back, and there were none of the ensuing ecchymotic discolorations characteristic of erythema nodosum. Pellizzari,† Ricord, and Fischer have also reported similar cases. Other differences are pointed out under Bromid Eruptions.

Purpura has been recorded several times by Silcock, Stephen Mackenzie, C. Fox, E. Vidal, Besnier, Fournier, and others. In Mackenzie's case the child died from it after a single dose of two and a half grains. In Silcock's case the purpura disappeared under arsenic, and returned when that was left off; the limbs were especially affected. Hemoptysis and metrorrhagia have also occurred (Kness). It has been noted in the mouth

\* Abs. *Brit. Med. Jour.*, May 10, 1890.

† Abs. *Ann. de Derm. et de Syph.*, vol. vi. (1885), p. 573.

with and without skin purpura. According to Besnier purpura does not occur from iodine itself, only from iodide of potassium. In Arnozan's case bullous lesions with severe general symptoms first appeared, and left papillary growths on the cheeks, and was followed by purpuric patches on the buttocks and legs and urticaria on the fingers.

In Tom Robinson's case, a man of sixty-three, a grain of iodide three times a day produced purpura in a week.

*Gangrene* has supervened occasionally on other forms of iodide eruption; thus in O'Reilly's case of bullous iodide rash, the parts on which the bullæ had been, sloughed, the entire penis being lost.

*Erythema-like* lesions sometimes occur, of which I have seen one marked instance.

Iodide of potassium has sometimes aggravated pre-existing eruptions for which it has been unsuitably prescribed. I have several times seen such an aggravation of acne rosacea, the eruption suppurating more freely than usual and extending beyond its usual boundaries. It is a dangerous drug in bullous eruptions.

A case of dermatitis herpetiformis under my colleague, R. W. Parker, was aggravated into a gangrenous condition by its use. Iodide, like bromide eruption, has occurred in suckling infants whose mothers were taking the drug.

Thin examined a bullous iodide eruption in a case under Howard Marsh. The sebaceous glands were unaffected, but the vessels were diseased and plugged with disorganized blood. The bulla, he considers, is due to an injury to the walls of a blood-vessel at a limited spot, which allows of the escape of blood constituents; when the injury is slight, iodine acne is produced; when more severe, bullous and pustular eruptions, and in the worst form, hemorrhagic extravasations.

Vincent Harris\* also examined a pustular eruption in one of Duckworth's cases, and regarded it as a localized superficial dermatitis, in which the hair follicles and sweat glands were unaffected; the vessels were numerous, dilated, and sheathed with exudation corpuscles; the effusion was greatest in the papillary layer, which was flattened out and excavated.

I have also examined a small lesion from an extensive pseudo-bullous eruption (my Atlas case). While Harris' observations are true in the main the hair follicles do not always escape, as the woodcut clearly demonstrates, and as may often be seen during life; at the same time,

\* *Path. Trans.*, vol. xxx. (1879), p. 476.

neither they nor any other structure are essential to the process, which is mainly in the papillary layer. The lesion is a solid one; there is no vesiculation in the rete, as the clinical appearances suggested.

Leredde and Pini found numerous eosinophile cells; they are not only in the deeper parts of the infiltrated area, but also in the rete Malpighii, and epidermis (Rosenthal \*). Rosenthal also noted extravasation of blood.



**Fig. 27.**—An iodid eruption which looked like a vesicle, but proved to be solid, consisting of enormous cell effusion in the papillary layer with a hair follicle in the center, and the sebaceous gland unaffected.

Iodid and bromid eruptions, especially the severer forms, are very liable to occur where there is any renal inadequacy, whether that is due to disease of the kidney itself, or to a weakly acting heart. This helps to explain the circumstance that iodid eruptions often do not come out until the drug has been stopped for some days, or even two weeks. Iodid of potassium is a powerful diuretic, and as long as diuresis is kept up, unless the dose is

\* *Archiv f. Derm. u. Syph.*, vol. lvii. (1901), p. 7, Plate III.

very large, there is often no eruption, but when the drug is stopped, after a few days the diuresis stops, and the iodine, not being removed fast enough, excites an eruption.

*Diagnosis.*—This is much the same as for the bromide rashes, but the lesions are more frequently partially bullous. The discrete pustules are smaller than those of bromide or ordinary acne, and are often simple pustules, with a red areola, but no induration.

*Treatment.*—The same as for bromide eruptions, with the addition of diluents, such as barley water, freely administered.

**Iodoform.** Iodoform is rarely given internally,\* but when absorbed from wounds or other surfaces, eruptions and serious general symptoms have occurred. Jadassohn, from his own observations, believes that in all cases the drug must also come into contact with the sound skin; and even in Raynaud's and Herzfeld's cases, where absorption apparently occurred by the vagina and urethra respectively, suggests that the skin may have received some of the drug; he cites three cases in which a mucous membrane was immune to iodoform, while the skin reacted. Eruptions from its directly irritant action on the sound skin are far more frequent, chiefly in persons who have a special idiosyncrasy towards the drug, which may be congenital or acquired.

The eruptions from absorption are erythematous, urticarial, or purpuric. The erythematous may be diffuse and bright red (Zeissl) or finely papular. In a case of iodoform absorption under Marcus Beck,† a punctiform rash was observed on the arms, knees, and dorsal surface of the feet. Janovsky of Prague also reported a case at the Copenhagen Congress. Treves ‡ reports a case in a child, in the form of closely packed minute papules on an erythematous base from half to one inch across. It was interesting because it developed three days after the subsidence of a local irritant dermatitis from the application of iodoform to a wound. Hoepfl has only observed small red spots over the whole body from its application to a wound.

\* Zeissl gave it in a considerable number of cases, but never saw a rash from it.

† *Brit. Med. Jour.*, June 17, 1882.

‡ *Practitioner*, vol. xxxvii., No. 4, October, 1886, with bibliography.

Zeissl had a case with urticaria nodules following the application of iodoform pencils to a sinus.

*Purpura* has been observed by Jennings, Janovsky, R. W. Taylor, and others. In Jennings' \* case grain doses in capsule had been given. That serious general symptoms of nocturnal delirium, elevation of temperature, drowsiness, and progressive emaciation, or even simulated meningitis, may follow from its absorption is well known. Death has occurred in some cases.

The eruptions due to the local irritant action of iodoform may be in the form of diffuse erythema with edema, resembling erysipelas sometimes, or it may go on to a violent vesicular or bullous eruption, but more frequently presenting an eczematous appearance. Neisser describes eight cases of eczematous eruption following its use, commencing with deep redness with severe itching and burning, followed by the development of vesicles. Like other forms of irritant dermatitis, the eruption is not always limited to the site of immediate application, and especially is this the case in surgeons, who, having once suffered from it, show an increased susceptibility to it, until at last even the smell is sufficient to excite an eruption, as in Koster-Sykes' own personal experience. Handling iodoform gauze has produced violent vesicular dermatitis repeatedly, as Hancocke Wathen † records. A number of cases are reproduced in Fox's note to Morrow's article. These eruptions are often not distinguishable from a vesicular eczema, but the more violent the inflammation the more likely is it to be due to an irritant.

**Lactophenine.** Large erythematous plaques on the face, with swelling of the upper lip and a pea-sized bulla and small blood-stained ulcerations on its inner surface, preceded by heat and pricking of the head, and later intense headache, shivering, and fever. These were the symptoms observed by A. Haber ‡ in a woman of fifty, who took twelve grains in a day.

**Mercury.** Although it was denied by Hebra, it must be ad-

\* *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. vi. (1888), p. 175. See also R. W. Taylor, *New York Med. Jour.*, October 1, 1887; Meunier, "Thèse de Paris," 1889; and M. L. Raynaud, *Annales de Derm.*, vol. vi. (1895), p. 227.

† *Brit. Jour. Derm.*, vol. x. (1898), p. 95.

‡ *Correspondenz Blatt f. schweizer Aerzte*, vol. for 1897, p. 742.

mitted, on the authority of Fournier \* and Hallopeau, Engelmann, and others, to say nothing of older writers like Alley, that erythematous eruptions may arise from its internal administration, while the so-called mercurial eczema from its inunction is well known, and is of the same character as that due to any other irritant, but with a great tendency to generalize.

Universal exfoliative dermatitis from mercurial inunction has already been alluded to under Dermatitis, and it has also occurred after a sublimate dressing (Eudlitz). Exfoliation of nearly the whole of the horny layer without erythema has also occurred (S. Taylor). The eruption from ingestion may be partial or general, is diffuse, deep red, accompanied by swelling, and may easily be mistaken for erysipelas, especially as it begins in the face, and the surface is smooth, shining, and itchy. It may extend over more or less of the body. It may be papular or scarlatiniform, as in the case of Robinson of Constantinople, and in Hallopeau's case a single dose internally or externally produced a scarlatiniform rash, followed in two weeks by abundant desquamation: after two and a half grains of calomel, miliary vesicles followed, which developed into pustules. In Ramally's case it followed two mercurial inunctions, while no rash followed an injection of mercurial oil; in Lessing's case general scarlatiniform erythema ensued on a hypodermic injection of calomel; hypodermic injections of yellow oxid of mercury (Petersen), and thymol mercury have also been followed by erythematous eruptions; but Janovsky found that injecting pure paraffin oil produced the same rash as the thymol mercury in the same patient.

Guelpa met with a papular eruption on the face and limbs from using a vaginal douche of a half per cent. solution of corrosive sublimate. Petrini had a case of bullous eruption in a woman of twenty-two after an intra-uterine injection of the perchlorid. She was intolerant of mercury in any form. In Mouffier's case it followed vigorous mercurial and belladonna frictions. In Blanchon's case a general roseolous eruption followed exposure to the fumes of mercurial vapor. Therefore the evidence goes

\* See also L. de Saint-Germain, two cases, *Ann. de Derm. et de Syph.*, vol. i. (1890), p. 657. There is a good abs. of Morel-Lavallée's paper in *Brit. Jour. Derm.*, vol. iii. (1891), p. 395. Also Berlin Inter. Cong. Jadassohn's paper, *loc. cit.*, gives many interesting cases.

to prove that in the case of mercury these eruptions may follow in certain people whatever may be the mode \* in which the drug enters the body. This is corroborated by a case of Bürtzeff,† in which a papular eruption followed an inunction, a hypodermic injection, and a single dose internally, the mercurial preparation being different each time. General symptoms of mercurialization may or may not be present. The above do not exhaust the possibilities of the form the eruption may take; urticaria, purpuric, and ulcerative eruptions occur.

**Morphia.** A bright erythematous eruption, attended with severe itching and pricking, has followed the ingestion of morphia or opium, in many instances. Cases have been reported by Ringer, Farquharson, C. Fox, and others. As a rule it is papular, and resembles measles, but the papules vary in size, and sometimes the eruption is scarlatiniform, or the minute papules may be crowned with minute vesicles. Steinboehmer records a vesicular eruption, and Kirn ‡ describes even small bullæ with intense itching of the perineum and scrotum after a suppository; Möbius from the same cause saw general erythema and urticaria. Multiple ulcerations occurred in Surroville's case. Trousseau considers the sweat orifices to be the site of the lesions. Very free desquamation of the whole area often ensues.

These eruptions are much more frequent after ingestion of the drug than after hypodermic injections, but a scarlatiniform eruption was produced by a hypodermic injection by Comanos. Inflammation, urticaria, pustules, and abscesses at or near the site of injection are not rare, and are probably due to the nozzle not having been made aseptic before use, or from the acid used to dissolve the morphia. Opium and laudanum eruptions are of similar characters when produced by taking the drug, but opium is also a local irritant to some. In a morphinomaniac injector § there was intense irritation of the skin, and indurated scaly patches developed where the scratching was most severe.

\* On the other hand, several cases like Ramally's are known, in which inunction produced a rash, while none ensued when given by the mouth, and in another subcutaneous injection produced no rash, although inunction had done so. See Jadassohn, *loc. cit.*

† Bürtzeff. Abs in *Brit. Jour. Derm.*, vol. iii. (1891), p. 396.

‡ *Wien. med. Presse*, No. 18, 1883.

§ Private Notes, J., p. 692.

**Phenacetin.** Valentin \* reports a case where fifteen grains produced in two hours flushing, and next day a general acuminate and flatly papular erythematous rash, most marked on the limbs.

**Phenyl hydroxylamin.** † A student spilt an alcoholic solution of this drug on his clothing, over the abdomen and thighs; in a few minutes he became comatose and pulseless. The lips and mucous membrane of the mouth were gray-blue, the skin of the extremities intensely blue, while other parts looked cadaverous. There were also reddish-brown spots which did not disappear on pressure, on the hands, thighs, and abdomen. Blood when drawn off was chocolate brown, due to the hemoglobin having been converted into methemoglobin. Nitro-benzole poisoning produces similar effects. Drawing off some of the blood and intravenous injection of a liter of 3 per cent. chlorid of potassium, followed by .4 bicarbonate of potassium, saved his life.

**Phosphoric Acid.** Hasse records the occurrence in a girl of a bullous eruption like pemphigus from this drug. The eruption disappeared when the medicine was stopped, and recurred when it was resumed. Phosphorus has produced purpura, but only in a poisonous dose.

**Quinine.**—The eruptions due to quinine, and occasionally to other cinchona preparations, are multiform in character, and vary much in severity. They are rather rare, considering how frequently the drug is administered. An eczematous eruption is not infrequent among the workmen in quinine factories, apparently due to external contact. Morrow analyzed 60 cases from internal administration, and found 38 erythematous, 12 urticarial, 5 purpuric, 2 vesicular and bullous eruptions. Erythematobullous and other lesions are on record. They are more frequent in women, but the only cause assignable is idiosyncrasy, for although more common where the dose has been large or frequently repeated, a single dose of a grain or a grain and a

\* Valentin, *Therap. Monatsch.*, July, 1888, p. 330.

† Hirsch and Edel, *Deutsch. medicin. Wochensch.*, October 14, 1895. Abs. in *Lancet*, November 16, 1895, p. 1261.

half has several times been sufficient to produce a rash, and in one, half a grain produced an erysipelatous rash on one side of the face, which lasted twelve hours (W. Newman), while Burney Yeo \* experienced an extensive erythema on the legs four hours after a single dose of a quarter of a grain.

In C. W. Allen's † case the idiosyncrasy was acquired, and here also a quarter of a grain would excite an eruption, while by varying the dose the eruption, "primarily erythematous, became urticarial, edematous, bullous, covered with small vesicles or converted into an excoriated patch." Moreover, he could produce an eruption whether the drug was given by the mouth or rectum, subcutaneously, or by ointments, or by the patient holding the drug in the mouth for a few minutes.

Stelwagon's ‡ case at present holds the record, the patient had had a score of attacks; 1-16 of a grain by the mouth, a dentrifice containing a small proportion of calisaya bark, and a quinine hair-wash were all equally efficacious in producing, in a few minutes, a hot flush over the whole body, soon followed by a copious and universal scarlatiniform eruption, and this again by desquamation.

The erythematous form varies. As a rule, it is a scarlatini-form efflorescence, beginning on the face and neck, and spreading all over; or it may be partial, but symmetrical in its distribution. Sometimes the lesion is more distinctly papular, the papules being minute and acuminate or convex and morbilliform; even when more distinctly urticarial the wheals are more often pink than white. All these forms are attended with severe itching and pricking, and may be preceded and accompanied by considerable constitutional disturbance, nausea, vomiting, a rise of temperature even up to 102° F., and a pulse of 130 or 140. In one case there was severe dyspnea with large wheals (Floyer). The general erythematous eruptions are, unless transitory, followed by desquamation, which may be very copious, casts of the hands and feet being thrown off, and sometimes the exfoliation persists for several weeks or even two months (Köbner).§

\* *Brit. Med. Jour.*, March 16, 1889.

† *N. Y. Medical Record*, January 26, 1895.

‡ Stelwagon, *Amer. Jour. Cut. Dis.*, vol. xx. (1902), p. 13.

§ An extreme case is recorded with illustrations by Lanz of Moscow in the *Monatsh.*, vol. xvi. p. 309.

Some think that desquamation may be produced without antecedent eruption, but this is highly improbable. In Neumann's case the desquamation after the efflorescence lasted several weeks, and many abscesses and furuncles ensued.

In a case of Nunn of Savannah the erythema was in bright red patches, one inch in diameter, and almost unilateral, occupying the left side of the nose, cheek, and chin, flexure of left wrist, back of hand, and knuckles of fourth and fifth fingers; and in another case it was on the palms and face. In Ruysen's case the patches were only on the extensor aspect of the limbs, very variable in size and shape, and mingled with them were small papules.

In several cases severe inflammation about the genitalia has occurred. In Schuppert's case, after six-grain doses, intense inflammation, with commencing gangrene of the scrotum, ensued. In Briquet's case an ecchymotic patch on the buttocks became gangrenous; and in Köbner's case there was an erysipelatous eruption of the scrotum. Purpura of the usual characters has followed quite moderate doses; a grain and a half taken for four days produced it in Gaudet's case.

Vesicular eruptions are less common than any of the above. Heusinger \* had a case in which there was a vesicular eruption like herpes, and Panas saw an eruption like the bullæ of pemphigus after large doses. It may also be vesiculo-pustular.

In Hagan's † case a child of four and a half suffered from an erythematous eruption for three years without the cause being suspected, the mother having been in the habit of dosing the child with quinine to prevent its taking cold.

The diagnosis can only be made from similar eruptions due to other causes, by knowing that the patient has taken quinine, and excluding other factors; in many cases there is a history of previous attacks under similar circumstances. From *scarlatina*, the constitutional symptoms will generally assist in the differentiation, and there is often in the erythema a sharp line of demarcation from the normal skin contrasting with it, while that of *scarlatina* is never defined at the border.

The treatment is simple and effectual. Withdraw the drug, and use locally soothing astringent lotions, such as calamin or

\* Quoted by Bergeron and Proust.

† *New York Med. Jour.*, March 28, 1891.

subacetate of lead; the addition of liq. carbonis detergens, ℥x to the ʒj, assists in allaying the itching. Sometimes a saline purgative may be given with advantage.

**Resin.** "About as much as two walnuts" produced in a woman swelling of the face, followed by an urticaria, with small wheals on the chest and arms (Jacob).\*

**Rhubarb.** Litten † met with a case of severe hemorrhagic and pustulo-bullous eruptions from ʒiij of infusion of rhubarb with bicarbonate of soda. Goldenberg had also a case with purulent bullæ. In Kütur's case there was a "general desquamative recurrent scarlatiniform eruption both from rhubarb and from ipecacuanha."

**Salicylic Acid**, its salts and derivatives, salicin, salipyrin, salol, etc., produce eruptions in a rather large proportion of cases, the salicylate of soda being the most frequent offender, partly, but not entirely, because it is more frequently given than the rest. These drugs act primarily on the vaso-motor centers, and the eruptions may be scarlatiniform, morbilliform, or urticarial, less frequently vesicular, bullous, or purpuric. A rise of temperature, ‡ sweating, and edema are frequent concomitant vaso-motor phenomena.

**Salicylate of Soda.** Erythematous eruptions following the ingestion of this drug have been so frequently recorded that special references are unnecessary in the majority of cases. They are scarlatiniform in character, and may thus give rise to some difficulty in diagnosis, especially when the mucous membranes are affected, but they would not develop exactly like scarlatina, as they may commence in any part of the body, and often the rash is not uniform in its characters. Morbilliform, patchy, and diffuse erythema, often with much edema, are less common. Urticaria is not very common. A very severe case is recorded by Shepherd § of Montreal. A man with supposed

\* Jacob, *Med. Press and Circ.*, March 3, 1880.

† Supplement, *Brit. Med. Jour.*, May 21, 1891.

‡ A temperature of 107° F. is recorded by Barron, *Lancet*, May 31, 1890.

§ *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. xiv. (1896), p. 16.

acute rheumatism, after taking three twenty-grain doses, developed an urticaria beginning on the lower extremities, becoming general by successive crops, involving even the mucous membranes. The wheals soon became hemorrhagic, and many of them sloughed, leaving slowly healing ulcers. Blebs also appeared on some of the lesions.

Bullous eruptions have been observed several times. Rosenberg \* records a bullous eruption which ensued several times after the administration of the soda salt, and was kept up as long as there was any salicylic acid in the urine. A case of extensive pemphigus in acute rheumatism in a boy of sixteen, reported by Bayliss,† was probably due to the salicylate of soda. A circinate erythematous-vesicular eruption, apparently like a dermatitis herpetiformis, was experimentally proved to be due to this drug by E. Beier.‡

**Salicin** produces eruptions usually erythematous, like those from salicylate of soda, but far less frequently.

**Salicylic Acid.** Heinlein § observed a case in which, when the dose was raised to gr. 60, itching and tingling of the skin were produced, followed by diffuse redness of the left side of the face, the right side of the chest, and both lower limbs, with slight edema of the eyelids, upper lip, and lower limbs, and a rise of temperature to 101.8° F. and a pulse of 90. After an interval the same dose was repeated; in a quarter of an hour severe burning pain was felt, and in half an hour severe general urticaria ensued, but was gone by the next day. Small doses could be taken with impunity.

In Wheeler's || case there were vesicles and pustules on the hands and feet, with much sweating, which ceased when the drug was stopped. Freudenberg ¶ observed large petechiæ and vibices, followed in a week by profuse desquamation. The repetition of the drug after an interval produced the same result.

\* *Deutsch. med. Wochens.*, 1886. No. 33.

† *Lancet*, August 19, 1893. Other cases are quoted in Neale's "Digest," and Morrow's "Drug Erup.," p. 410. *Syd. Soc. Ed.*

‡ *Archiv f. Derm. u. Syph*, vol. xxviii. (1894), p. 125.

§ *Rundschau*, Bd. 19 (1878), Heft. 10. Urticaria is also recorded in *Practitioner* for February, 1879.

|| *Boston Med. and Surg. Jour.*, October 17, 1878.

¶ *Allg. med. central Zeitung*, October 26, 1878.

**Salipyrin.\*** In a man of sixty-six with old nephritis, after four fifteen-grain doses an infiltrated red edema of the scrotum was produced. The repetition of the drug led to necrosis of the affected areas. A. Bruck † observed in himself an eruption after a single gram dose. The characters of the rash were those of antipyrin, to which the author had previously shown himself to be hypersensitive; on the glans penis the rash was vesicular.

**Salol.** Demme ‡ observed urticaria in a child after its internal use, but such an occurrence is quite exceptional. Violent dermatitis has ensued from its topical use (Morel-Lavallée).

**Santonin.** Urticaria developed in a child shortly after taking three grains of the drug for supposed worms. It subsided in a couple of hours, after a warm bath (Sieveking). §

**Silver Nitrate.** Long-continued administration is well known to produce slate-colored pigmentation (see Argyria).

**Stramonium** produced an erythematous eruption in a case of Deschamps. ¶

**Strychnia.** A quarter of a grain of quinine three times a day having produced after the second dose a scarlatiniform rash, 1-24 of a grain of strychnia was given instead, and the same kind of rash appeared (Skinner ¶¶). Diefbach accuses strychnia of producing pruritus and miliaria.

**Sulphonal.** Leloir describes a diffuse erythematous and macular eruption like a syphilitic roseola, chiefly on the trunk. Schotten and Engelmann report a diffuse scarlet eruption, one on the thighs, the other on the breasts; while Bresslauer has seen purpuric patches on the limbs. The urine after toxic doses is brownish-red, due to the presence of hemato-porphyrin. Wolters reports two cases, one with a scarlatiniform, the other with a vesicular eruption.

\* F. Schmey, *Ther. Monatsch.*, 1897, Heft. 3, p. 175.

† A. Bruck. *Abs. Brit. Jour. Derm.*, vol. xiii, (1901), p. 196.

‡ *Brit. Med. Jour.*, Paris corr. December 22, 1888.

§ *Brit. Med. Jour.*, February 18, 1871.

¶ *Gazette des Hôpitaux*, 1878, No. 124.

¶¶ *Brit. Med. Jour.*, January 29, 1870.

I know of a patient who has taken the drug nightly for fifteen years without ill effect.

**Tannin.\*** General urticaria followed the topical application of a one to fifteen solution of tannin to the pharynx in a case under the care of Lange of Copenhagen.

**Tar.** When absorption occurs from its vigorous inunction over a large surface, shivering, fever, nausea, vomiting, and diarrhea may ensue, with olive-green urine, black vomit and feces. On the skin itself tar may also act injuriously; in some people a very moderate external use will produce swelling, redness, heat, and pain, and sometimes itching; vesicles and bullæ may form; also "tar acne," or inflammation of the hair follicles or sebaceous glands, from plugging of the orifice, producing papules or nodules with a black central spot; in a few case these papules break down and ulcerate. The application of the tar must be stopped at once on the occurrence of such symptoms, and free diuresis, produced by copious draughts of barley water, will often prevent or soon remove them.

Waldeck † records that an erythematous eruption occurred in a patient who was taking Guyot's tar capsules. Carbolic acid absorption from a Lister's dressing produced an "erythema urticatum" in one case (Zeissl).

**Terebene.** O. H. Garland ‡ reports that after six five-minim doses a profuse, bright red, intensely itching, papular rash was produced, first on the left hand, with much swelling, and then on both ankles, extending on the legs up to the knees. In the same patient, thirty years previously, a turpentine liniment produced a similar rash, with much swelling of the arm. Lascelles Scott experienced a similar rash, but ascribed it to the impurity of the terebene.

**Toxin or Serum Eruptions.** The subcutaneous injection of various toxins or anti-toxins, such as tuberculin, diphtheritic, anti-streptococcic serums, and others, is not infrequently at-

\* *Brit. Med. Jour.*, May 10, 1890, from *Deutsch. med. Wochensch.*, January 2, 1890.

† *Deutsch. med. Wochensch.*, iv., 1879, No. 9.

‡ *Lancet*, May 22, 1886.

tended with the development of erythematous eruptions, scarlatiniform, morbilliform, patchy, or diffuse. Urticaria is also frequent. As a rule, these eruptions, to which only a certain number of people are liable, recur after each injection, but not always in the same form. There is little or no itching, but there may be desquamation. There is nothing distinctive about these rashes. The form, and indeed the very occurrence, depends on the idiosyncrasy of the individual, so that the vaso-motor centers are abnormally easily affected by these toxins, and the diagnosis is only made by the knowledge that a toxin has been injected. According to Dubreuilh, the serum of the horse is liable of itself to produce an eruption, and he suggests that other animals should be selected for anti-diphtheritic serum.

**Turpentine** has been followed by an erythematous redness, chiefly of the face and upper part of the body, minute papules, and sometimes vesicles, with intense itching, developing in some cases. In one case minute acuminate papules, like shagreen, with violent itching, extended all over the body, the itching continuing after the rash had gone. In another a bright red morbilliform eruption was produced by a teaspoonful of turpentine given to a child with diphtheritic croup. Feibes reports a conical papular eruption due to it.

The forms of eruption and the drugs that produce each are placed together in the following enumeration:

**Erythema.** Arsenic, antipyrin, belladonna, benzoate of soda, boric acid, borax, bromin, cantharides, capsicum, chinolin, chlorate of potash, chloral hydrate, chloralamid, chlorate of potassium, chrysarobin, codeia, copaiba, cubebs, digitalis, dulcamara, guiacum, iodine, iodoform, lactophenine, mercury, morphia, phenacetin, quinine, salicylic acid, stramonium, strychnia, sulphonal, tar, tartarus boraxatus, terebene, toxins, turpentine.

**Vesicular.** Antipyrin, arsenic, cannabis indica, chloral, cod-liver oil, copaiba, iodine, morphia, quinine, salicylic acid, sulphonal, turpentine.

**Bullous.** Antipyrin, bromine (one case), cannabis indica, copaiba, chloral, iodine, mercury, morphia, phosphoric acid, quinine, rhubarb, salicylates.

**Urticarial.** Antipyrin, arsenic, bromin, copaiba, dulcamara, guarana, iodin, iodoform, quinine, resin, salicylates, santonin.

**Pustular.** Arsenic, bromin (confluent), chloral, iodine (isolated), salicylic acid.

**Purpuric.** Antipyrin, arsenic, chloral hydrate, chloroform inhalation (early stage), ergot, iodids, iodoform, quinine, salicylic acid, sulphonal.

**Pityriasis Rubra.** Bichromate of potash, mercury.

**Psoriasis (?).** Borax, bichromate of potash.

**Eczema.** Bromin (Voisin), borax, chrysarobin, bicarbonate of potash, iodoform.

**Gangrene.** Arsenic, ergot, iodid, quinine (one case).

**Keratosi.** Arsenic.

**Persistent Desquamation.** Quinine.

**Abscess.** Quinine.

**Furuncles.** Arsenic, bromin, quinine.

**Anthraxoid.** Bromin, iodine.

**Ecthyma.** Bromin.

**Zoster.** Arsenic.

**Cyanosis.** Antifebrin, exalgin, monobrom-acetanilid, phenylhydroxylamin.

**Pigmentation.** Arsenic, nitrate of silver, picric acid.

**Sarcoma-like.** Iodine.

On reviewing these various drug eruptions, the number which produces some sort of erythema is very striking. Excluding those which, like nitrate of silver, merely produce discoloration, there are forty-eight; out of these, thirty-seven produce erythema, and of the other eleven, three excite urticaria and four vesicular or bullous eruptions.

The presumption is in favor of all these exanthematous rashes being due to a vaso-motor neurosis, either from reflex irritation, or direct action on the vaso-motor centers, or perhaps in some cases, as Jadassohn thinks, on the peripheral nerve-ends. Behrend's ingenious view, that those drugs which did not produce special eruptions (such as bromin and iodine, which he calls dynamic eruptions) produced toxins in the body, has no facts, only analogies, to support it, and is unnecessary, as the theory of nerve influence is more probable and is sufficient to account for them. Brooke supported this view in a well-argued paper, with which I agree. On the other hand, I cannot accept Fox's view, that the eruptions produced by the external application of drugs is of the same nature as those from the inside, except so far as they may be classed with all irritants, which in predisposed persons will excite a widespread dermatitis from a local irritation. There are certain drugs about which there must be some reservation. They are belladonna, iodoform, and mercury, and in rare cases morphia and quinine, whether introduced into the body by the mouth, mucous membranes, or skin; the result is in certain people to produce an erythematous rash. Belladonna does so, probably by its direct effect on the vaso-motor nerves, while it is unknown how the others act. The more special action of iodine and bromine has already been discussed.

### ANIMAL POISONS.

Besides the directly irritating effects from the bites or stings of insects and contact with certain of the lower animals, there remain certain animal poisons, which usually gain an entrance into the body by inoculation through some abrasion, pricks, or other trifling lesion, and are liable to set up inflammation, sometimes of a phlegmonous character; the severity of the effect depending largely upon the special character of the poison and the susceptibility of the patient. These poisons may be specific, like those of splenic fever or glanders, or non-specific, as in dissection wounds. They are all doubtless of bacterial or micrococcal origin, though they have not all been identified. As the skin manifestations are the least important part of the disease in many cases, they can only be briefly considered here.

## DISSECTION WOUNDS.

The inoculation of the virus derived from the dead bodies of men and animals gives rise to various troubles, local and general, or both, and of trifling or grave importance according to the period of the decomposition of the body, the cause of death, and the state of health of the recipient of the poison. Of the nature of the virus we know little; it probably varies in its qualities, and is generally, if not always, of bacterial origin. It is most virulent in fresh bodies, and in those who have died of septic diseases. The poison gains entrance into the body through some trifling defect in the skin, such as a chap, prick, or abrasion.

In rare instances acute and rapidly fatal septicemia may arise, without local changes at the site of inoculation; while if pyemia supervenes, it is always secondary to other lesions.

The brunt of the local effects falls upon the cellular tissue, the lymphatics, or the skin; in the last, the symptoms being almost always purely local, while in the first they are often serious, and even fatal. When the cellular tissue is chiefly involved, diffuse cellulitis sets in, with brawny swelling of the tissues, starting and spreading rapidly from the point of inoculation. In some instances so severe is the inflammation as to produce spreading gangrene; and the general symptoms are serious in proportion to the extent and severity of the inflammation. Lymphatic inflammation may attack either the vessels, or the glands, or both, with or without marked signs of inflammation at the site of inoculation; here again the general symptoms may be slight or severe.\*

The skin lesions are ordinarily boils, whitlows, onychia, or pustular folliculitis at the back of the hand. These present nothing special in their form or treatment.

There remain two more characteristic lesions—the Post-mortem Pustule and Wart, or *Verruca Necrogenica*, which is described under *Lupus Verrucosus*, from which it differs only in its etiology.

\*For more detailed information, see Holmes' "System of Surgery," or similar work: or the article on "Post-mortem Wounds," by Marcus Beck in Quain's "Dictionary."

**The Post-mortem Pustule** starts from some prick or abrasion, which becomes hot, red, and itching by the next day, and in another twenty-four hours a pustule is formed, with pain and tenderness, relieved when the pustule is pricked; but pus again forms under the scab, with repetition of the symptoms, and this may happen again and again, each time the lesion becoming larger, unless suitable treatment is employed. Occasionally there is sympathetic inflammation of the glands and lymphatics, and slight constitutional disturbance.

*Treatment.*—Open the pustule, drop in a little iodoform, and keep it moist with wet boric lint under oiled silk until it has quite healed.

**Erythema Serpens.** This is a septic, but not a serious erysipelatoid erythema, first described by Morratt Baker,\* who met with many cases in the butchers from Smithfield meat-market.

It follows on a scratch, *e. g.*, from meat bone, or while dressing meat or game, and less often after other trivial injuries not so obviously open to animal toxins. From a few days to a week or two after inoculation a pink inflammatory blush appears of a patchy character, with borders fading into the healthy skin; others develop and group into an enlarging circle, so that they become more separate. They affect the knuckles and both surfaces of the fingers, and although there is very little swelling, movement is much impaired and great pain is complained of, tingling, burning, or shooting in character, seldom extending beyond the finger and hand. Red lines along the lymphatics and swollen glands are quite exceptional. The patient looks and feels ill out of proportion to the local symptoms, but there are no febrile symptoms of importance.

The disease lasts from two to six weeks, averaging three; it never suppurates, and rarely involves the trunk, lymphatics, or veins. It is readily amenable to hot boric acid fomentations and saline aperients.

**Erysipeloid**, as described by Rosenbach,† appears to be a

\* Morratt Baker, *St. Bart. Hosp. Rep.*, vol. ix. (1873), p. 198, with colored plate.

† Rosenbach, *Verhandlungen der Deutschen Gesellschaft f. Chir.*, April, 1897. Also W. Anderson and Colcott Fox, *Brit. Jour. Derm.*, vol. xi. (1899), p. 121.

closely analogous, if not identical, affection met with in the same class of persons. It is accompanied by pricking and itching about the fingers and hands, extends peripherally while dying away centrally, without desquamation; but, unlike Baker's erythema serpens, it is described as having a sharply defined, slightly elevated, dark violaceous, almost livid red zone round the site of inoculation. It gets well in one to three weeks without treatment. Rosenbach found a coccus which he classed as a cladothrix, as it produced a closely woven mass of fine threads of various lengths on cultivation. By inoculation of pure cultures he reproduced the disease in forty-eight hours.

"Gayle" in man. In the lambing season ewes are liable to a very fatal disease called "gayle," which appears to be a sort of puerperal fever. Men who skin animals which have died of this disease sometimes inoculate their hands. The result is the formation of a pimple, which enlarges into a flat, loculated, and therefore lobulated vesicle with a slightly depressed center, which may be an inch in diameter, and is of a bluish-gray color and with a slight areola. The contents are clear or blood-stained serum. There is no pain or febrile disturbance, but the axillary glands are enlarged and the hand may be swollen. Klein has shown that it is due to a special organism which he called "staphylococcus hæmorrhagicus,"\* from its producing hemorrhagic edema when cultures were injected into guinea pigs and sheep. J. McNaught observed two cases in men who had been killing healthy lambs. One of the men had slight pyrexia. It is remarkable that the organism should produce such serious general symptoms in sheep and guinea pigs and only a local affection of a mild kind in man. It shows that it is no ordinary septicemia.

The treatment is to remove the covering of the vesicle and disinfect the surface. Colby used corrosive sublimate. Probably 1 in 2000 would be the best strength.

\* "A Coccus Pathogenic to Man and Animals: Staphylococcus Hæmorrhagicus," E. Klein, *Brit. Med. Jour.*, August 4, 1897, p. 385; and McNaught's letter, *loc. cit.*, September 11.

## EQUINIA.\*

*Deriv.*—*Equus*, a horse.

*Synonyms.*—Glanders, Farcy; *Fr.*, Morve; *Ger.*, Rotz.

*Definition.*—A contagious, specific disease, with general and local symptoms, derived from the horse or ass.

Glanders is fortunately a very rare disease in the human subject. The attempt made by some authors to distinguish between glanders and farcy is not scientifically sound or practical, and it is best to divide it into acute, subacute, and chronic. The acute cases terminate within four weeks, and are almost invariably fatal; the subacute go on to six weeks or so; the chronic may last for months or years, about fifty per cent. recovering.

*Symptoms.*—The general symptoms set in from three days to three weeks after inoculation, the site of which is not always ascertainable. The early symptoms are vague and indefinite, of the usual febrile characters, among which prostration, constipation, and vague muscular and articular pains, when severe perhaps ascribed to acute rheumatism, are the most distinctive. Later on the pyrexia gets more marked, with severe rigors, profuse sweatings, and diarrhea instead of constipation; the patient sinks into the typhoid state; pyemia, with or without jaundice, may supervene, and he dies exhausted.

The local manifestations affect chiefly, and most distinctively, the mucous membranes, the skin, and the lymphatics.

One of the most characteristic symptoms is a nasal discharge, catarrhal at first, then purulent, and often sanious, but always thick, tenacious, and offensive; the inflammation spreads to the respiratory, oral, and ocular mucous membranes, with corresponding symptoms. This nasal discharge may occur very early, and be very profuse, as in acute glanders, or quite late and moderate, as in some chronic cases, and is due to ulceration of the mucous membrane, which goes down even to the bone, and leads to perforation; it is invariably present at some time or other in acute and subacute, but in not more than half the chronic cases. In an early stage minute gray points may be

\* Illustrated in *International Atlas*, Plate XX. *Farcin chronique térébrant*, E. Besnier.



GLANDERS.

To face page 510.



found in the respiratory passages. These are granulations which break down into ulcers covered with a broken-down yellow *débris* like pus, which is full of bacilli. If the disease has gained entrance through a wound or abrasion, the site of inoculation becomes painful, tense, red, and inflamed, and a spreading ulcer forms, with foul, loose, irregular edges, chancroid aspect, and dirty, sanious, and often offensive discharge. There is swelling and often inflammation of the neighboring lymphatic vessels and glands, and phlegmonous inflammation, with numerous pustules and ulcers, may affect the whole limb or region in which the disease started.

The special and characteristic skin lesions begin deep in the corium. In from two days to three or four weeks they appear on the surface as scattered groups of red spots, which soon become shot-sized papules and change to yellow, and may thus sometimes be mistaken for pustules; but pustules the size of a pea on livid red bases, and rather like variola pustules, are produced if the papules become vesicular or bullous. These may coalesce into irregular superficial ulceration, with dirty sloughy coating, or dry, black, gangrenous patches may form. Infiltrations also occur in the subcutaneous tissues, and break down into large deep sloughs; these skin lesions are not invariably present in all acute cases, the patient sometimes dying before they come out. Besides the lymphatic vessels and glands in the neighborhood of the inoculation, those elsewhere also enlarge and inflame. The nodules thus produced are called in the horse, where they are very numerous and marked, "farcy buds"; these "buds" may either resolve, or more often suppurate in a low form, and break down into foul ulcerating cavities, with indurated and irregular edges and base.

These various lesions, the erythema, phlegmonous processes, pustules, abscesses, and ulcers may affect almost the whole surface, and with the joint troubles fill the patient's cup of misery to the brim.

*Etiology.*—The disease occurs almost exclusively in those who have to do with horses, and so only in male adults; a very few instances have occurred where it has been conveyed to women and children by the husband and father, who was the first victim. In Elliotson's classical case, a laundress was infected from washing the clothes of a coachman who had died of the disease. The

disease arises, either by direct inoculation of the secretions themselves on a wound, or through the mucous membrane or entire skin; *e. g.*, where the horse has snorted in the victim's face, and so inoculated the eyes, nose, and mouth.

*Pathology.*—It is due to a specific micro-organism, the bacillus mallei, the size of the tubercle bacillus, culture inoculations invariably reproducing the disease, as was proved by Loeffler and Schütz. Bouchard, Charrin, and others have made similar, but not such conclusive observations.

These bacilli, in film preparations, may be in pairs or single, rarely in threads. The bacillus may be pointed at one end like a note of exclamation without the dot, or both ends may be rounded, or it may be like the italic *f*. It stands irregularly, but best with Loeffler's methylene blue (*vide* Appendix). It produces the toxin called mallein, which when injected into glandered animals produces severe febrile reaction (102° to 104° F.) and a local one accompanied by immense swelling at the site of injection, while it has little or no effect on a healthy animal.

*Diagnosis.*—When there is no history or evidence of inoculation or contact with glandered animals, this may be difficult until the symptoms of skin, lymphatic, and mucous membrane lesions are declared. There is no difficulty when these sets of symptoms are present. The bacillus may be detected in the yellow detritus which generally covers the ulcers of the mouth, and very often, but not always, in the nasal discharge. Even where the microscope has failed, Strauss' inoculation method has succeeded. When glanders pus is injected into the peritoneal cavity of a male guinea pig swelling of the testicles occurs within twenty-four hours, and a culture of the bacilli may be found between the tunica albuginea and the other tunics of the testicle. According to MacFadyean, agglutination of glanders bacilli by the blood of a glandered horse occurs in the same way as in Widal's reaction in the serum diagnosis of typhoid fever. I am not aware that the mallein test has been used in man, but as it may be useful as a therapeutic measure also, the experiment would be justifiable when the diagnosis could not otherwise be made. Buschke considers it applicable as a test for glanders of internal organs.

*Prognosis.*—This is always serious, and in proportion to the acuteness of the symptoms.

*Treatment.*—Nothing has been of any avail in acute cases. In chronic ones also, the treatment hitherto has been on general principles—to keep up the strength of the patient, and to give large doses of quinine, but the success of the anti-diphtheritic serum treatment suggests that similar treatment may be available here also. Stiénon of Brussels tried it in an apparently hopeless case. Mallein was injected, beginning with one milligram, and increasing in the course of sixteen days to thirty milligrams. There was marked improvement in a month, and recovery took place in a few months more. There was no local or general reaction during the febrile period, but during the non-febrile period of convalescence there was some elevation of temperature after injection. Buschke has also used it in chronic glanders; he began with one milligram and increased it to a gram in the course of a week; the patient did not show any local or general reaction and recovered.

### PUSTULA MALIGNA.

*Synonyms.*—Anthrax, Malignant pustule; *Fr.*, Charbon;  
*Ger.*, Milzbrand.

*Definition.*—A gangrenous carbuncular lesion, produced by inoculation with virus containing the bacillus anthracis derived from animals suffering from splenic fever.

Splenic fever is a disease of horned cattle, sheep, and horses, which may be communicated to man either by inhaling infective particles or by direct inoculation. The first mode of infection produces internal anthrax, a general and rapidly fatal disease without any skin affection; the second leads to external anthrax or malignant pustule, which is at first a local lesion, from which the general system is soon infected. This second or local variety is the only one which will now be considered.

Being derived from contact with the hides or secretions of diseased animals, the exposed parts, such as the face, neck, and hands, are most commonly attacked. At the site of inoculation there is at first considerable itching and burning, soon followed by the formation of a livid-red papule, on which arises a bulla with serous or bloody contents, or a pustule on an inflammatory areola. The bulla or pustule ruptures, and the dark red spot

beneath dries up into a black, gangrenous eschar a quarter of an inch or more in diameter, bordered by small vesicles or pustules on a hard base, the skin round for a considerable distance is of a dusky red hue, densely infiltrated, the boundary being well defined, and the tissues edematous, or so indurated that it even creaks on section, while the glands and lymphatics of the affected region share in the inflammation. The gangrene may extend sometimes very rapidly and widely, with a speedily fatal issue, sometimes more gradually over a small area; when it is arrested, supposing the patient to survive, the slough separates in a variable time, according to its depth and extent, and healing follows by granulation, as in carbuncle. In exceptional cases a widespread and malignant edema takes the place of the pustule.

The constitutional symptoms vary according to the extent of the gangrene and the surrounding inflammation, and later on, according to the secondary complications. By the time the black eschar has formed, general infection of the system has commenced, and shows itself by rigors, vomiting, swelling of the glands, pyrexia (which may reach 104° F. or more), severe pain in the head and bones; the patient sinks into a typhoid state and dies comatose, perhaps with convulsions, due to meningeal hemorrhage, in thirty or forty hours; or, if the constitutional infection is a little less severe, lung or other complications arise, and occasion death in four to six days—seldom longer. On the other hand, in favorable cases, with suitable treatment, the symptoms gradually subside, the sloughs separate, and recovery slowly takes place.

There is thus (1) a period of incubation of from a few hours to a few weeks, without prodromata; (2) the development of the local primary lesion of papule, vesicle, and pustule, lasting from twelve to twenty-four hours; (3) consecutive brawny infiltration and edema round it, gangrene in the course of the next twenty-four hours, and death in two to eight days, or a protracted recovery.

*Etiology.*—The disease chiefly affects those who have to do with the hides of diseased animals, such as butchers, slaughterers, tanners, wool-sorters, etc. It is seldom derived directly from the live animals, but flies are sometimes the medium of its conveyance, while the flesh, if imperfectly cooked, and milk or

butter from the diseased animals, have produced it in rare instances.

*Pathology.*—It is definitely proved that the disease is due to the presence of the bacillus anthracis, a rod-shaped organism  $3\ \mu$  to  $10\ \mu$  long, and  $1\ \mu$  to  $1.5\ \mu$  in diameter. This grows in the blood and all the tissues, and, after the first day or two, may be found not only in the fluid from the specific pustule, but also in the sweat, sputa, urine, and feces. In the skin it is distributed in the papillary layer, as has been demonstrated by Charlewood Turner,\* A. Barker, and others.

*Diagnosis.*—The occupation of the patient, the position of the lesion, the presence of a gangrenous patch with vesicular border, extensive edema, and induration round it, with the severe constitutional symptoms, leave little doubt of the nature of the affection.

Before the gangrene has declared itself the occupation is often the only clew. Inoculation experiments on animals may be used for confirmation of the diagnosis, though it would not be right to defer treatment for this; a more ready method would be to stain some of the fluid from the pustule, after drying it on a cover glass, and search for the bacilli. (For the method of procedure see Appendix.)

The lesion somewhat resembles a *malignant facial carbuncle*, a *primary chancre of the face*, or a *poisoned wound*, but the rapid progress and gangrene distinguish it from these.

*Prognosis.*—The mortality of this local form is about 33 per cent., but varies in different outbreaks. The extent of the gangrene, rapidity of its formation, and the constitutional symptoms afford the best data for the immediate results; later on, the presence or absence of complications is the chief guide. The presence of the bacilli in the blood and secretions is a very bad but not absolutely lethal condition.

*Treatment.*—The good results from early † excision, cutting widely beyond the central lesion, leave no doubt about this being the proper course to pursue. It is not necessary to carry the incision beyond the induration laterally, but vertically it should

\* *Med. Chir. Trans.*, vol. lxx., 1882, in Davies-Colley's paper.

† Davies-Colley's paper, *loc. cit.* Case by Marrant-Baker in *Brit. Med. Jour.*, June 14, 1884, with colored lithograph. Clinical lecture on a case of true anthrax, by A. E. Barker, *Clin. Jour.*, June 5, 1895, p. 91.

go well down into the fat. The thrombosis of the vessels prevents there being much bleeding.

The injection of iodine or carbolic acid (5 per cent. solution) under the eschar is a good but less radical and more uncertain measure; thus Buck of Leicester records a case of recovery which was treated in this way, together with the administration of large doses of hyposulphite of soda and large quantities of meat; the good result was probably due to the carbolic acid at the same time. Potěenko cured four cases with 10 per cent. injections of carbolic acid. Three or four Pravaz syringefuls were injected into the swelling once a day, and part was soaked with a 5 per cent. solution in the intervals.

Arnold injects one-half per cent. solution of perchlorid of mercury in a 5 per cent. carbolic solution—one or two syringefuls twice a day. Slesarevsky cut away the hard part of the slough and dusted with pulverized corrosive sublimate. No toxic symptoms occurred in forty-four cases. J. B. Gresswell has had marked success in treating splenic fever in cattle with the sulphite of soda, so that the salt deserves further trial; large doses of quinine, five or ten grains every four hours, are also strongly advocated. An exclusively animal diet is recommended, on the ground that the disease is not communicable to the carnivora; but this is not true for cats and dogs, which die if they eat the uncooked flesh of a diseased animal.

### VACCINATION RASHES.\*

Vaccination is too often falsely accused of a large proportion of infantile eruptions; at the same time it cannot be altogether acquitted of being the indirect cause of rashes which are not,

\* *Literature*.—Illustrated in Author's Atlas. Plate XXXIX. shows Impetigo Contagiosa and so-called "Vaccine Lichen," really a papular erythema; Fig. 2, Plate XLI., shows a more profuse erythema; and Fig. 1, Plate XLII., whilst really a case of varicella gangrænosa, illustrates the kind of gangrene sometimes following vaccination. "Vaccinal Eruptions," G. Behrend, *Amer. Arch. Derm.*, vol. vii., October, 1881. "Vaccinides," by Dauchez, "Thèse de Paris," 1883. "Vaccinal Eruptions" (five cases), Napier, *Glasgow Med. Jour.*, June, 1883, p. 424. Morris, "Introduction to Discussion on Vaccination Eruptions," *Brit. Med. Jour.*, November 29, 1890. L. Franck, *Amer. Jour. Cut. Dis.*, vol. xiii (1895), p. 142. Acland, "Vaccinia in Man," article in Allbutt's "System of Medicine." Reprint, Macmillan, 1897. A good *résumé* of the whole subject.

however, special to it, and are usually transitory, and, if the enormous number of children vaccinated be considered, extremely rare. Moreover, since there is seldom more than one of several vaccinated from the same lymph who show any eruption, it is obviously the soil rather than the seed that is at fault, and that it is not due to "bad matter," as the laity generally imagine; and indeed true vaccine eruptions are more common from calf than from humanized lymph vaccinations.

The following classification is modified from the one proposed by Morris, as it did not quite cover all the facts:

Group I.—Eruptions resulting from pure vaccine inoculation.

A. Secondary local inoculation of vaccine.

B. Eruptions within the first three days before the vesicles form, which include urticaria, erythema multiforme, vesicular and bullous eruptions.

C. Eruptions following the development of the vesicles due to the absorption of the virus include: (a) morbilliform, scarlatiniform, and diffuse erythema, erythema multiforme, vaccine lichen, and purpura; (b) generalized vaccinia, "vaccine généralisée" of French authors.

D. Sequelæ of vaccination, eczema, psoriasis, urticaria, etc.

Group II.—Eruptions due to the vaccine plus some other virus.

A. Introduced at the time of vaccination.

(a) Producing local disease: impetigo contagiosa (exceptional), or other form of superficial inflammation.

(b) Producing constitutional disease: syphilis, leprosy, general tuberculosis (?).

B. Introduced after the development of the vesicles nearly always after the eighth day: erysipelas, cellulitis, impetigo contagiosa (common), furunculosis, granulation tumors, gangrene (local or disseminate), pyemia.

It will be observed that the eruptions in Group I. are unavoidable with our present knowledge, and are largely, if not entirely, dependent on the idiosyncrasy of the patient. Those in Group II., on the contrary, are all avoidable; those in Division A. by scrupulous care on the part of the operator, either as regards cleanliness of the patient's skin, or of his instruments, to avoid the local effects of A. (a), while A. (b) may be avoided by care in the selection of the vaccinifer and in the mode of taking

the vaccine from the vesicle, or, still better, by the use of glycerinated calf lymph. Very much may be done to avoid the diseases under B. in this group by the preservation of local antisepticism, *e. g.*, by covering the vesicles with alembroth wool or gauze, which may be tacked to the sleeve, and by seeing that the surroundings of the patient are thoroughly hygienic. The last point is not, however, in the doctor's hands, as a rule.

Taking the above eruptions in their order—

Secondary inoculation \* sometimes occurs between the formation of the primary vesicles and the eighth day, and in such cases the secondary vesicles catch up, so to speak, the primary one, and are mature at the same time. This fact was known to Jenner. Of this kind is Padiou's † case of confluent vaccination over an eczematous surface, from which the child's mother and nurse were accidentally inoculated on the face. Lacour records a similar case, with fatal result. In Sharkey's ‡ case a similar widespread auto-inoculation appears to have supervened on vari-cella, though it is given as an instance of variola or varicella. In a case from Lassar's clinic, § *accidental vaccination* over an extensive eczematous surface occurred from the child having been bathed in the same water as the vaccinated baby. Trousseau found that reinoculation could be performed successfully up to the ninth or tenth day.

Nicolle and Thiercelin have reported cases inoculated on to zoster and herpes labialis. Accidental inoculation, chiefly from children to parents, occurs not infrequently, and, as might be expected, often in odd places, face, genitals, etc., and I have seen it grafted on to impetigo contagiosa of the chin in the child from its revaccinated mother.

Accidental inoculation also occurs from cowpox to man in milkers, from horsepox ¶ to grooms, and others who have

\* Dr. Shirley Murphy, who had large experience as one of the directors of the Government animal vaccine establishment, informs me that this secondary inoculation is not at all uncommon. What he considered a well-marked case of this was brought to U. C. H. in the summer of 1886, with apparently typical vesicles on the buttocks.

† Quoted in *Amer. Arch. Derm.*, vol. vii. p. 89.

‡ Sharkey, *Lancet*, vol. ii. (1887), p. 47.

§ Reported by Peter, *Annales de Derm.*, vol. v. (1894), p. 535.

¶ Hutchinson's smaller Atlas, Plate XCVIII., face. Langton, *Clin. Soc. Trans.*, vol. x. (1877), p. 121, illustrated.

treated horses suffering from "grease"; one such case came under my observation in which the pocks were more raised up and vesicular than in cowpox. In other cases there has been enough resemblance to vaccinia to suggest the nature of the lesion. The variola of sheep-pox has also been transmitted to man. In an observation of Bosc and Bourquier \* it took the form of a variolous eruption localized to the hand and forearms, but it subsided in a week.

**Recrudescence** of vaccination sometimes occurs.† It usually occurs shortly after the vaccination, but Sir Thomas Watson records the case of a girl of fourteen, in whom, in the course of an influenza, vesicles developed on the site of her scars from infantile vaccination, and an elder sister was successfully revaccinated from the fluid from the vesicles. In Washbourn's ‡ case scarlet fever woke up the vaccination of two years before.

**Generalized Vaccinia**, the "vaccine généralisée" of French authors, occurs under exceptional circumstances, chiefly after animal vaccination; the vaccine eruption, instead of being confined to the points of inoculation, is widely spread. Thus Dr. Longstaffe § of Wandsworth records the case of his own child, in which there were between eighty and ninety secondary vesicles, seventy of which were on the vaccinated arm. Colcott Fox || showed what seemed to be a genuine case of generalized vaccinia in a child nineteen days old. The vaccine lesion ran a normal course until the ninth day, when lesions began to appear all over the body, and a large number of pustules very like those

\* *Trans. Twelfth Internat. Cong.*, Moscow, 1897. Abs. in *Brit. Jour. Derm.*, vol. ix. (1897), p. 459.

† Dr. J. R. Williams, *Brit. Med. Jour.*, March 15, 1902, p. 696, relates some interesting cases.

‡ *Lancet*, March 8, 1902, p. 664.

§ *Brit. Med. Jour.*, 1883, March 10.

|| *Derm. Soc.*, June 8, 1892. Published with another case in the *Clin. Soc. Trans.* vol. xxvi. (1893), p. 108. At p. 114 is a case by Acland and Fisher, with colored illustration, where a child three months old, vaccinated with humanized lymph, had a confluent eruption round the points of inoculation by the fourteenth day, followed by a secondary eruption over the trunk and extremities in scattered pocks, of which there were twenty-eight on the forty-third day. The child died, exhausted, on the forty-ninth day. Numerous references.

of vaccinia developed. Both in this his second case, and Acland's, and in other cases, a large number of confluent vaccine vesicles formed round the site of inoculation before they appeared in other parts of the body.

It is still a matter for discussion whether this multiplication of vesicles is only a result of secondary inoculation or of a true generalization of the eruption, due either to the exceptional activity of the virus or an abnormal receptivity of the patient. That it is not the virus is shown by the fact that in many of the recorded cases the vaccinia of other children vaccinated with the same lymph has run a normal course. That very widespread vaccinias may occur from accidental or auto-inoculations on a pre-existing eruption has already been shown; but there is a residue of cases in which the balance of evidence is in favor of a generalization from within, as in the following case of Hugueses (de Saïda),\* a child of four months, who was vaccinated with seventeen other children from calf lymph. On the fourth day there was a general eruption, which developed into typical lesions by the seventh day with high fever and general disturbance, and the child died on the ninth day. In Gaucher's case numerous "boutons" came out all over the body on the ninth day in many positions; auto-inoculation by scratching was impossible. The child died on the fifteenth day.

This is also Haslund's † opinion of some cases, published by him; and Acland, in the paper already referred to, adduces cases showing the possibility of general infection through the digestive, circulatory, or respiratory system, for vaccinia, as Chauveau had previously shown, was possible in the horse, into the trachea, lymphatics, and veins of which he injected vaccine virus. Acland also quotes authorities to prove that on the one hand "the receptivity of an individual to successive vaccinations in series diminishes during the second week and usually becomes extinct before the fourth"; and on the other that, "in inoculated smallpox, local manifestations may be reproduced by succes-

\* *Maladies Cutanées*, vol. xii. (1899), p. 224.

† "Vaccinia generalisata und deren Pathogenese," by Haslund, *Arch. f. Derm. u. Syph.*, vol. xlviii. (1899), pp. 205 and 371, which gives a *résumé* of the subject with numerous references to date. Paul also has contributed a paper, expressing the same views, in vol. lii. (1900), p. 3. *Abs. Annales de Derm.*, vol. ii. (1901), p. 110.

sive inoculations over considerable periods of time." Austin Martin related an instance of generalized vaccinia (four hundred typical vesicles) in a nursling from its revaccinated mother, and he cites Cazal, who produced it by giving powdered vaccinia crust by the mouth in a child of four refractory to vaccination by ordinary methods. There were a hundred and eighty typical vesicles.

Some of the instances reported have been from erroneous diagnosis, such as impetigo contagiosa or the confluent bromid eruptions, or were probably examples of mild ulcerating vaccinia, such as will be described under *Vaccinia gangrænosa*.

The other general eruptions under C. have very little that is special to vaccination, similar lesions being produced by other causes. Under the name of **roseola vaccina**, Hebra describes an erythematous eruption, appearing from the third to the eighteenth day after vaccination, analogous to that seen sometimes at the onset of variola. The eruption consists of red maculæ from a threepenny piece to the palm in size, commencing usually upon the arms, spreading sometimes all over, and leaving no trace behind. It is accompanied occasionally with a slight rise of temperature, lasting only a few hours. This form of eruption is rare in my experience, and as a rule the papules are smaller. Thus in one such case they were flat, from a pin's head to the third of an inch, except one palm-sized patch on the left breast; and on the legs they were pin's-point-sized and acuminate. Behrend also describes this as morbilliform. I have, however, seen extensive diffuse erythema on the trunk, while on the limbs there were papules and papulo-vesicles. Sometimes the erythema becomes purpuric as in Epstein's \* cases. He met with 14 cases of "*Erythema vaccinosum*" out of 344 cases vaccinated with calf-lymph. It appeared from the fifth to the eleventh day. Many of his cases no doubt would come under the eruption which I find most common, and of which I have notes of over 20 cases, the so-called **vaccine lichen**, which is really an erythema. It may be either **papular**, **papulo-vesicular**, or **pustular**, very rarely **bullous**. It comes out from the fourth to the eighteenth day, most frequently on the eighth; begins on the arms in half the cases, and on the trunk, neck, or face in the rest; then, by successive crops, it may spread over a

\* Abs. *Brit. Med. Jour. Supplement*, July 16, 1893.

considerable part or even the whole of the body, pretty evenly distributed, and sometimes tending to form circles or segments of circles.

The papules are acuminate, pin's-point-sized, and bright red, and these characters may be preserved to the end. They usually remain discrete, but sometimes coalesce into patches; but, as a rule, a good proportion of the papules are crowned with small vesicles and pustules, and have a red areola sometimes half an inch in diameter, the vesicles or pustules being generally small. In a moderate number of cases the eruption as a whole is vesicular, or rather papulo-vesicular, but it is rarely entirely pustular.

In the vesicular cases sometimes the vesicles enlarge and become herpetiform, and more rarely bullous, as recorded by Behrend and others. Of this an extreme instance was brought to me by Dr. Claremont. A girl of fifteen months was vaccinated with glycerinated calf-lymph; on the eleventh day red patches appeared on the face, on which minute vesicles crowded in groups, developed and coalesced into elongated bullæ, and by the sixteenth day some were over three inches long on the vaccinated arm. On the lower limbs the single vesicles varied from a millet seed to a large pea. At the time I saw the case there were still some erythematous patches with minute vesicles on them, and also vesicular circles with a clear center on the thighs. There were vesicles also on the palms, soles, and palate. The vaccination pocks were a little slow in healing, but there was no other abnormality.

In ordinary cases, when the small vesicles dry up, they leave the base as a flat, shining papule, like lichen planus. There is rarely any constitutional disturbance, and usually only moderate itching, though occasionally it is severe. The rash lasts from a few days to a week or two, but in some of the vesiculo-pustular cases fresh crops keep on appearing, perhaps for months, attended with considerable itching, precisely similar to the **varicella prurigo** of Hutchinson. The following case illustrates a good many features of these eruptions:

A week after vaccination a general, red, conically pointed, papular eruption appeared, lasted a week, and then became vesicular, first on the shoulders and then down the arms and legs, feet, palms, soles, and slightly on the trunk; the vesicles

became pustules from one-sixteenth to one-eighth of an inch in size, with a slight red areola; there was much itching, and the eruption continued to come out in crops for some time.

Wheals are not uncommon in connection with the pruritic cases, probably due to scratching, but they are not often seen in the early periods; occasionally *urticaria* is present as early as the second day, but it is much more common as a sequela.

*Urticaria pigmentosa* has also been observed as a sequel.

Behrend records typical cases of *erythema exudativum multiforme* in the first week of vaccination, and I have seen a well-marked case which began on the ninth day. The flat papules enlarged up to flat patches the size of a shilling, and cleared in the center into rings. Napier met with a case which began as rings on the eleventh day. Norman Walker \* relates five cases, some like *erythema iris*. In other cases the papules enlarge into convex nodules, from a split pea to half a marble, chiefly on the back of the hands and wrists, an *erythema nodulare* † in short.

*Erythema exudativum* and *urticaria* have also been noticed in revaccination. Gregory ‡ has described hemorrhagic vaccinia.

*Eczema* may either start from the vaccinia pustules in the same way that it may start from any other form of dermatitis, or begin elsewhere soon after vaccination. It appears to excite it only in predisposed subjects, being, as it were, only the match to the train already laid, and by no means always in these, as eczematous children, who are in otherwise good health, may often be vaccinated without any aggravation of existing disease, and vaccination has indeed sometimes proved curative. In few cases can vaccination be held responsible where the vaccinia pustule has completely healed before eczema appears.

*Psoriasis* may be mentioned among what may be called curiosities. A case was described by Chambard § which was excited by vaccination, and two by Rohé, one a man, the other a boy;

\* N. Walker, *Brit. Med. Jour.*, May 18 (1901), p. 1201.

† E. A. Barton of Kensington sent me notes of three such cases.

‡ Quoted in Hutchinson's *Archives of Surgery*, vol. i. p. 195.

§ *Annales de Derm. et de Syph.*, vol. vi. (1885), p. 498; *Amer. Jour. Cut. and Ven. Dis.*, Rohé, vol. i. p. 11. Piffard, p. 119, and T. Wood, p. 161.

both had been vaccinated from the calf. Moulinel \* collected these and other cases, to which may be added cases by Robinson and Rioblanc † (tenth case), and another by Truffi ‡ in a boy of eleven years. It has been suggested that it is the traumatism, and not the virus, which excited a pre-existing psoriasis. In favor of this is the fact that all the cases I can trace have not been infants, but children or adults. In Wood's cases, a man of twenty-one with inveterate psoriasis was apparently cured by vaccination, while his two sisters of eight and eleven years, vaccinated from a calf, were attacked by psoriasis soon after the vaccinia healed, never having shown any sign of it previously.

Still more inexplicable, Diday describes a case in which sixty days after inoculation round each of the cicatrices a coronet of hairs sprang up, which were three-eighths of an inch long four months later. **Keloid** § has occasionally developed on the site of the vaccination scars. Of this I have seen two cases. It is more likely to occur where from any cause there has been a delay in the healing of the vaccinia vesicles.

**Dermatitis Herpetiformis** apparently due to vaccination, but beginning six weeks after it, is recorded by Pusey || of Chicago, who refers to a few other cases. It lasted four and a half years. **Pemphigus** has also been reported, but the diagnosis has not always been indisputable.

Bowen of Boston records six cases in children between five and ten years, in which distinctly grouped vesicular and bullous eruptions developed within four weeks of vaccination in one case, and in other cases within one or two weeks. Ringed erythema preceded the vesicular element in some cases. There was eosinophilia (in two cases eighteen to twenty-one per cent.) both in the blood and bullæ, and the eruption lasted for months or years. In the discussion on these cases the diagnosis was

\* "Thèse de Paris," 1884.

† *Annales de Derm.*, vol. vi. (1895), p. 880, with references to date. In vol. viii. (1897), p. 1169 is an abstract of a "Thèse" by P. Vignale, but he does not appear to have added another case.

‡ Truffi's case is published in abstract in the *Annales*, vol. x. (1899), p. 799. He leans to the diagnosis of seborrheic eczema.

§ Hutchinson, *loc. cit.*, p. 197. Acland, *loc. cit.*, gives references.

|| *Amer. Jour. Cut. Dis.*, vol. xv. (1897), p. 158; and Bowen, *loc. cit.*, vol. xix, September, 1901.

disputed by some, but as dermatitis herpetiformis is probably of toxic origin, there is nothing very improbable about it. A well-marked case in an adult was related by Galloway at the Dermatological Society in April, 1902, when Sequeira showed a pemphigus after vaccination.

Although a very rare occurrence, the possibility of communicating **syphilis** by vaccination has been established by Hutchinson, Cory, and others;\* and the same still more rare possibility must be considered for **leprosy**. Besides Daubler's two cases from Robben Island is the case related by Gairdner. The use of calf lymph and clean instruments will entirely preclude such a possibility in the future.

I am not aware of any recorded proof of tuberculosis being inoculated with vaccinia, but there are several cases of **Lupus vulgaris** appearing on the site of vaccination, which suggests that such an accident is possible and even probable.†

Of the other avoidable eruptions, **impetigo contagiosa** is very rare, as indeed it ought to be, directly resulting from the operation; but as a sequel it is very common. The pus of the vaccinia pustule becomes inoculable from the deposition of pus cocci from the air or from those already in the skin, and the inoculable pus is conveyed to other parts of the body by the child's fingers, chiefly at the time when the vaccinated arm becomes irritable. **Furunculosis** occurs from the absorption of these cocci and dissemination through the circulation. **Erysipelas**, **cellulitis**, and **pyemia** occur chiefly when the hygienic surroundings are faulty, but I have known one case of erysipelas supervene on an uncured impetigo contagiosa several weeks after the vaccinal pocks had completely healed, while in another the disease was communicated by the mother to her infant, she having visited a neighbor suffering from erysipelas while the child's vaccination was incubating, and had herself suffered from the general symptoms of erysipelas without any external mani-

\*Such cases scarcely ever occur now. At the East London Hospital for Children, where the patients were the poorest of the poor, over twenty thousand cases passed through my hands, and I never saw a case, nor did any of my colleagues there, or I should certainly have heard of it. Colcott Fox has had a similar negative experience at a children's hospital.

†Graham Little, *Brit. Jour. Derm.*, vol. xiii. (1901), p. 81, records a case and quotes several others.

festation. The child first showed the disease on the twelfth day.\*

In these cases the disease generally presents itself as a cutaneous and subcutaneous infiltration of the skin, with a well-defined, raised, thick, reddened border, which travels up a limb or on the trunk an inch or more a day, the infiltration sometimes rapidly subsiding in the part traveled over, or the whole limb remains distended and hard, with much deepened folds like an acute elephantiasis. There is very little or no redness except at the border, but generally a waxy hue when distended, or slight pigmentation in rapidly subsiding cases. There is often very marked febrile disturbance,  $103^{\circ}$  to  $104^{\circ}$  F., and if the trunk is extensively involved death is likely to ensue, but where only one limb at a time is attacked, recovery may occur.

The **ulcerative and gangrenous** lesions may be local or disseminated. I remember a case in which the child was unwittingly vaccinated during the incubation of scarlatina, which developed before the eighth day of vaccination. The whole of the four vaccination places coalesced into a slough the size of a crown piece. The child recovered. Balzer met with a similar result after revaccinating a syphilitic subject. Hutchinson † relates similar cases, some fatal. The disseminated form will be described with other forms of gangrene of the skin.

Another lesion due to pus cocci is the granulomatous development which may supervene on any ulcerative lesion, the so-called botryomycosis hominis when it forms a pedunculated tumor, but which may only form a convex moist swelling on the site of vaccination. E. Gardner ‡ of Warwick records a case, and I know a few other instances.

The *treatment* of the erythematous vaccinides is very simple, as they rarely last more than a week or two. A laxative, with a soothing lotion to allay irritation, such as liq. carbonis detergens  $\text{m} \text{v}$  to  $\text{ʒj}$  of water or calamin lotion, would fulfill all requirements for the dry forms. For moist, a weak boracic or iodo-

\* A remarkable outbreak (forty-three cases) of chancriform vaccinia, supposed to be due to pus cocci, is recorded by Leloir, *Le Bulletin Médical* (1889), p. 1419.

† *Loc. cit.*, vol. i. pp. 97, 193.

‡ Granuloma following revaccination. *Brit. Med. Jour.*, May 29, 1897, p. 1347.

form ointment would be preferable. Where there is a high degree of inflammation attendant on the vaccinated arm, or elsewhere, a lactate of lead lotion often gives great relief. The treatment for the other eruptions will be found in their own sections.

### SPHACELODERMIA.

*Deriv.*—σφάκελος, gangrene.

*Synonym.*—Gangrene of the skin.

Apart from injury, death of a more or less extensive portion of the skin may occur as a kind of pathological accident in many conditions, chiefly of inflammatory origin. Most of them may be classified under one or other of the following heads, but in some we are at a loss to know under which category it would be correct to place them. All are due to obstruction of the circulation in the part, and that chiefly arterial. A hemorrhage into or beneath the skin may also lead to death of the part and sloughing, as I have often witnessed.

- |   |   |  |                                   |
|---|---|--|-----------------------------------|
| I. Within the vessel                      | { | Embolism.  |                                   |
|   |   | Thrombosis.                                      |                                   |
|   |   | Acute arteritis.                                 |                                   |
|   |   | <i>a.</i> Bacterial.                             |                                   |
|   |   | <i>b.</i> Syphilitic arteritis.                  |                                   |
|   |   | Calcareous degeneration,                         |                                   |
|   |   | <i>e. g.</i> , senile gangrene.                  | Spasmodic, <i>e. g.</i> ,         |
| II. Changes in the wall                   | { | Contraction of the muscular or other coats.      | symmetrical gangrene.             |
|   |   | Trophic defects, <i>e. g.</i> , acute decubitus. | Chronic, <i>e. g.</i> , ergotism. |
|   |   | Purpuric gangrene from blood extravasation.      |                                   |
| III. Pressure on the vessels from without | { | Inflammatory effusion round a vessel.            |                                   |
|   |   | Tumors, etc.                                     |                                   |

Some, like **noma** and **dermatitis gangrænosa infantum**, are bacterial, and probably gangrene occurring in diabetes has a similar origin. The destruction is seldom limited to the skin, affecting the other tissues more or less deeply.

A **paronychia gangrænosa** has been described by G. H. Todd,\* resulting in the loss of the terminal phalanges. See also Morvan's disease.

\* *Dub. Hosp. Rep.*, vol. ii. p. 274.

Only five kinds of gangrene of the skin need special description here, viz., Symmetrical gangrene, Hysterical gangrene, Dermatitis gangrænosa infantum, Diabetic gangrene, and Phagedena tropica.

**Symmetrical Gangrene.** *Synonym.*—Raynaud's disease.

*Definition.*—A local arterial ischemia, generally followed by asphyxia, occurring at the periphery of the circulation, and producing symmetrically distributed gangrene of the skin and other tissues in the affected region.

This disease, the extreme forms of which are rare, was first described by Raynaud,\* and his observations have been confirmed and extended by Barlow, Southey, and others.

*Symptoms.*—It begins usually after exposure to cold, and often without any premonitory symptoms, except sleepiness. The parts most frequently attacked are the fingers and toes, especially the second and third phalanges, though the nose and ears are not uncommonly involved. The affected parts become pale and hard, followed by swelling, numbness, and sharp darting or stabbing pains. The ischemia and consequent discoloration increase rapidly or slowly until the part becomes quite black, in a period varying from a few hours to a few weeks. Black bullæ sometimes appear at the line of demarcation, which has on its border a red band, but as a rule the gangrene is dry. Separation of the whole, or part of the tissues of the affected area, slowly ensues.

Monro found that fifty per cent. had local syncope, ninety per cent. local asphyxia, and sixty-eight per cent. had necrosis. I have several times observed a progressiveness in the severity of the attacks in each succeeding winter, or it may be a diminished resistance.

*Variations.*—Any part of the body, limbs, trunk, or face may be attacked in exceptional cases. As a rule only two extremi-

\* "De l'Asphyxie locale et de la Gangrène symétrique des extrémités," "Thèse de Paris," 1862, and *Arch. Gén. de Méd.*, vol. i. pp. 5, 189 (Paris, 1874). A translation by Sir Thomas Barlow, for the New Sydenham Society, with valuable notes, is published in "Selected Monographs," 1888. "Raynaud's Disease," by T. K. Monro, 1899. Glasgow: J. Maclehose & Sons. Founded on 180 cases observed and collected. Copious bibliography.



**RAYNAUD'S DISEASE.**

To face page 528.



ties are involved, but sometimes all four. Thus in Southey's case,\* a girl of two and a half, it began on the calves, after a slight feverish attack, and then numerous patches, becoming rapidly gangrenous, appeared on the backs of the legs, thighs, buttocks, and upper arms, worst where there was pressure, the child dying thirty-two hours from the onset. On the other hand, the gangrene may be limited to a small area of the pulp of the finger tip, and I have seen it so superficial that only the papillary layer was affected and the epidermis was hard and mummified, but no scar was left.

The process may, however, stop short of the death of the part, which may simply become white, cold, and hard like wax, and after remaining so for a few minutes or a few hours, recover, to be, however, again attacked after a varying interval, the local syncope eventually passing on to a local asphyxia; or there may be local asphyxia without antecedent local syncope. This mild condition may also be present on one side, while the other side becomes gangrenous, as in T. Smith's case,† a girl of three years, in whom the left hand was cold and livid, while on the right there was lividity, going on to gangrene of the fingers and thumb up to the first knuckles, where complete separation occurred; or the whole of the phenomena may be entirely unilateral, but this is exceptional. The pulse is small, even filiform, but can be felt close up to the gangrenous part.

*Etiology.*—The disease affects both sexes; in adults, males more than females, probably on account of their being more exposed to vicissitudes of temperature; but all ages are liable to it, ranging from two and a half to sixty-three, of whom a large proportion are children, and in all ages the female sex predominates as two to one (Monro).

Few positive statements as to more direct causation can be made, though exposure to cold has been the determining influence in a large proportion; hence the disease occurs chiefly in the winter. Some cases have occurred after diphtheria, typhoid, scarlatina, measles, malaria, and syphilis, one in connection with multiple tumors (B. O'Connor), one with pulsating tumors in the brain (F. Treves), two with diabetes (Raynaud and C. Fox), many with hemoglobinuria (Wilks, Barlow, Southey, etc.).

\* *Path. Trans.*, vol. xxxiv. (1883), p. 286.

† *Clin. Soc. Trans.*, vol. xiii., p. 196.

End-joint arthritis, temporary eye symptoms, and mental derangement have also been observed in a few cases, and Monro's statistics show that twelve per cent. have some abnormality of the cardio-vascular system, such as Bright's disease, exophthalmic goiter, or some allied neurosis. Some cases have been pronounced hysterics, and the attacks have been associated with polyuria. It has often occurred as a complication of generalized sclerodermia with atrophic shrinking and sclerodactylia, seven per cent., according to Monro. Other skin eruptions observed in association with it are eczema, hyperidrosis, purpura, and urticaria both ordinary and factitious.

On the other hand, many have had no such special antecedents, though it is common to find that the sufferers have habitually cold hands and feet, and while they are seldom liable to chilblains, they are to "dead or waxy fingers," or other symptoms of a poor circulation, the force of which is exhausted before it reaches the periphery, although the heart is not necessarily a weak one. An impressionable nervous system is present in a good many of the patients.

*Pathology.*—There are evidently arrest of the arterial supply of blood and venous stasis, followed by transudation of blood constituents into the tissues. There is a presumption in favor of spasm of the arterioles, as the immediate antecedent of these conditions, though whether due to a central or peripheral nerve influence cannot be established; Raynaud thought it was central, Pitres and Veillard regard it as a peripheral neuritis, while Buzzard thinks it is central and due to a blood poison. The association with other nervous phenomena in some cases, such as diphtheritic paralysis, or hemoglobinuria, is confirmatory of its neurotic and toxic origin, and there is growing evidence in favor of peripheral neuritis for the majority of cases.

In Ehrmann's and other cases it commenced with pains radiating in the forearms along the median and ulnar nerves. Probably central lesions high up in the cord or in the medulla oblongata may produce similar phenomena.

*Diagnosis.*—This is usually easy. The occurrence of coldness and lividity, followed by gangrene of the extremities, symmetrically distributed, is pathognomonic, and even where actual death of the part does not occur the symmetry is very significant, though it may be unequal in degree.

*Prognosis.*—Where the area involved is extensive, or the patient very young or very old, or broken down in constitution, the prognosis is serious; in more limited cases the dead parts separate or are removed, and the patient gets well, though he is liable to other attacks.

*Treatment.*—The constant current, applied with one pole along the spine and the other along the extremity to diminish the irritability of the vaso-motor centers, was recommended by Raynaud, and has been found to give marked relief. Barlow obtained better results by immersing the end of the affected limb in a large basin of salt water. The negative pole is placed in the water, the other is applied to the limb. The current is used as strong as the patient can comfortably bear, contact being made and broken frequently to produce contractions of the limb. Shampooing is also a useful adjunct. When galvanism is used quite early, the full development of the attack is averted. Hot applications should be avoided; cold and friction, as in frostbite, being preferable. Nitrite of amyl and nitroglycerin have been tried ineffectually, as far as the cure of the affection is concerned, but they give temporary relief and in cold weather improve the circulation while the patient is under their influence. Hutchinson recommends opium one-quarter grain, quinine two grains three times a day. In cases associated with intermittent hemoglobinuria, quinine in three- to five-grain doses may be given. Voisin uses oxygen footbaths, and Stoker's apparatus would be a convenient way of applying it. When gangrene has actually occurred, the limb is treated on the ordinary surgical principles for dry gangrene.

**Symmetrical Gangrene not due to Raynaud's Disease** may undoubtedly occur. Phisalix placed a microbial culture in a collodion capsule in the peritoneal cavity of a guinea pig, and symmetrical gangrene of the extremities, nose, and ears was produced. Vidal reported a case in which suppurative peritonitis with great effusion was followed by symmetrical gangrene of the lower extremities. Treves had a case following a pulsating tumor of the brain. H. Dufour relates a case following double pneumonia, and other cases could be cited.\*

\* Author's Atlas, Plate XL., shows moist gangrene which affected both feet symmetrically, after direct exposure to cold.

**Hysterical Gangrene.\*** *Synonyms.*—Neurotic gangrene; Spontaneous gangrene; Erythema gangrænosum.

*Definition.*—Cases of recurrent gangrene with no obvious cause, which the theory of a neurosis is supposed to explain.

From time to time cases have been put on record under one or other of the above synonyms.

Probably the most remarkable was that of Doutrelepont, which may be taken as the type of nearly all the rest. The patient, an hysterical girl, æt. twenty-one, was under observation for five years, until her death from phthisis. A trifling injury under the nail was the immediate antecedent. The day after the injury small gangrenous spots appeared on the back of the left hand, and successive lesions appeared at intervals over the whole limb and left side, and two months from the commencement the right side also, and later the head and face. The intervals between the attacks varied, sometimes a month or two. A rise in temperature and painful pricking preceded each outbreak, and then whitish-gray lesions on the same level as the normal skin appeared, made up of a group of smaller rounded lesions, "herpetiform groups," but the lesions were not vesicular to the naked eye, but with a lens there were inchoate vesicles, which, from the rapidity of the process, did not develop. The resulting lesions were always superficial, but most of the scars became keloidal, except when the wounds were dressed with corrosive sublimate. At a later period, however, vesicles and bullæ did sometimes precede the gangrene, though sloughs without vesicles were the rule. About the end of the third year the mouth became involved. Attacks became more frequent, affecting every region of the body; mental changes with great

\* *Literature.*—Doutrelepont, "Ueber einen Fall von acuter multipler Hautgangrän," *Archiv f. Derm. u. Syph.*, vol. xiii. (1886), p. 179 (colored plate), and sequel in volume for 1890, p. 380, and full abs. *Ann. de Derm. et de Syph.*, vol. i. (1890), p. 583. Joseph, "Ueber multiple neurotische Hautgangrän," *Archiv f. Derm. u. Syph.*, vol. xxxi. (1895), p. 323. Bayet, "Gangrènes disséminées et successives de la peau d'origine hystérique," *Annales de Derm. et de Syph.*, vol. v. (1894), p. 501. Hallopeau et Le Damany, "Altérations gangréneuses et nécrotiques multiples et unilatérales de l'Extrémité Céphalique," *Annales de Derm. et de Syph.*, vol. v. (1894), pp. 1261 and 1349; *Ibid.*, vol. vi. (1895), pp. 213 and 231. Report of the discussion at the Vienna Society of Physicians.

excitement alternating with depression occurred and led to suicidal attempts, and five years from the onset the patient died from phthisis, but towards the end the frequency of the occurrence of gangrenous patches diminished.

Duhring's \* case was particularly interesting. It started from a burn in a woman, æt. thirty-four, was vesiculo-bullous, began on the left hand, and two years after affected the right hand, which eventually had to be amputated. Nothing improved it until she had the Weir-Mitchell rest-cure, when the gangrene stopped and the places healed. It is noteworthy that she would be under closer observation than usual during the cure. Not long after she died from opium poisoning, for she was a confirmed opium eater, as well as a pronounced hysteric. Spiller made an examination and found some endarteritis and changes in the nerves of the right arm, but no central nerve changes. In an almost precisely similar case in a young lady, a morphia eater, it began also with a carbolic acid burn, and I conclusively proved it to be self-inflicted.

Many other cases in hysterical women have been recorded, of which those by Bayet, H. Hebra, Schwimmer, and Joseph may be especially mentioned, while Joseph, Boyet, Kaposi, and Quinquaud have recorded very similar cases, mostly in neurotic men, Joseph's case having been an apparent exception.

In some of them the vesicular commencement was absent, but the type case shows that this is not an essential difference. In most of them a slight injury preceded the first gangrenous lesion, which did not commence on the site of the injury. In Joseph's case the antecedent injury was a sulphuric acid burn, and the attacks only recurred every six months, at the beginning and end of the winter.

Since all the women were young and hysterical, and the men also were generally described as neurotic and hysterical, the theory of self-infliction is the most obvious explanation; and while the slight traumatism, so frequently an antecedent, has been assumed to be the starting point of a neuritis, and so to piece out the theory of a neurotic origin, on the other hand,

\* International Atlas of Rare Diseases of the Skin, Plate XLVIII., Fig. 5. *Brit. Jour. Derm.*, vol. xiii. (1901), gives Spiller's account of the P. M. changes in abstract, but his discussion of the possible causes of gangrene does not throw much light on this particular case.

as set forth under "Feigned Diseases," a slight injury has often been the suggestive element for imposture. Further, some cases first published as hysterical gangrene have subsequently been proved to be artificial.

Such was Erb's case, which was proved to be due to caustic potash, and by varying the duration of its application it was possible to produce erythema, wheals, herpetiform vesicles, and bullæ. Many cases have commenced, and remained left-sided for some time, but the right has generally been invaded at a later period. While all this would appear to point conclusively to an artificial origin, on the other hand there is the fact that many of the cases have been for a long time under the care of trained observers fully alive to the possibility of imposture, and who have tried all the means in their power to eliminate such an error.

The supposition of a physical neurosis does not really explain it, for although a severe neuritis will occasionally lead to gangrene of the skin, as in some cases of zoster, in these cases there is only a single attack of the gangrenous process, and our present knowledge does not admit of a satisfactory pathological explanation for such cases. No treatment has been hitherto of any avail to prevent recurrences. My own experience is strongly in favor of the theory of self-infliction.

**Zoster Atypicus Gangrænosus et Hystericus.** Kaposi has described a vesicular affection which he considers entitled to the above designation. In all the cases, of which he had eleven, the main features were an eruption of vesicles and papules, chiefly in groups, followed by central scabbing, which was often surrounded by a corona of pus or minute pustules. In some parts from coalescence large areas of gangrene were produced, and when the sloughs separated the granulating surface cicatrized, often with keloid development in the scar. The eruption stage lasted from four to eight days, and then retrogression took place. The eruption was symmetrical, did not correspond to any spinal or cranial nerves, and showed a marked tendency to recurrence; in the first case three times, while in the second and third cases there were second attacks after a year or two. The first three cases were all in hysterical young women, but the fourth was a man who was only seen once, and had on his left

forearm scabbing, vesicular groups, and striæ like case three. In its unilateral and, possibly, nerve distribution it was therefore not on all-fours with the first three cases. Kaposi discusses the diagnosis and pathology of the affection, and considers artificial production of the eruption may be excluded, and that it was distinctly different from the so-called spontaneous gangrene described in Doutrelepont's case and in many others; and finally refers it to atypical zoster, as the gangrene, bilateral distribution, and tendency to recur were all features which are seen occasionally in herpes zoster.\* While its nosological position is doubtful, it appears not to have any real relationship to zoster, and to rank only as at most a variety of hysterical gangrene.

**Dermatitis Gangrænosa Infantum.**† *Synonyms.*—Varicella gangrænosa (Hutchinson), Pemphigus gangrænosus (Whitley Stokes); Rupia escharotica (Fagge); *Fr.*, Ecthyma térébrant. Germ. Ecthyma gangrænosum.

*Definition.*—A gangrenous eruption, following varicella and other pustular eruptions of children.

This rare condition was first discovered by Hutchinson ‡ as a complication of varicella and subsequently of vaccinia § also, and since then many cases have been observed by Barlow, Lees, Haward, Payne, myself,|| and others; there can also be little doubt, as Hutchinson remarks, that Whitley Stokes' description of an epidemic of "pemphigus gangrænosus" in Ireland in 1809, and, as Barlow has pointed out, the "rupia escharotica" speci-

\* *Archiv für Derm. und Syph.*, vol. xxi. (1889), p. 561, with colored plate, and Hand Atlas, Plates CVIII. and CXII. *Abs. Brit. Jour. Derm.* vol. i. (1889), p. 278.

† Illustrated, Author's Atlas, Plate XLI., Fig 1, a severe case following miliaria; XLII., Fig. 1, a mild case with varicella. St. Louis Atlas, Plate XX., Fig 2.

‡ "Clinical Lectures on Rare Diseases of the Skin," p. 235, and a full account with Plate, in *Med. Chir. Trans.*, vol. lxx. (1882), p. 1.

§ A case of vaccinia gangrænosa, with recovery, is also recorded by Stokes of Dublin, in *Dublin Jour. of Med. Science*, June, 1880. It began forty-eight hours after vaccination.

|| See paper by the author in *Med. Chir. Trans.*, vol. lxx. (1887), p. 397: "Multiple Gangrene of the Skin in Infants, and its Causes," with numerous cases.

mens in Guy's Hospital museum,\* refer to the same condition. I have, however, ventured to depart from the name bestowed on it by Hutchinson, since it is not, as will be presently shown, always secondary to varicella and vaccinia.

The place of onset and mode of development vary according to whether the gangrene appears early or late in the course of the varicella, or is independent of that disease.

If it occurs while the varicella lesions are still present, it begins on the head or upper part of the body, and instead of the scab being thrown off, ulceration occurs beneath it, and often a pustular border with a red areola is formed, the whole resembling a vaccination pustule. The process extends, both in depth and peripherally, until a black slough is formed from a quarter of an inch to an inch or more in diameter, the smaller ones still with a pustular border and areola. After attaining to a certain size, varying very much, the process of separation sets in, and when completed, a sharp-edged, roundish or oval, conical ulcer is formed, deep or shallow in proportion to the diameter of the slough, some of the largest being quite three-quarters of an inch deep in the center. Extension of the ulcer seldom takes place after the separation of the slough has commenced. When they are closely aggregated coalescence will probably ensue, and then very large ulcers, irregular both in contour and floor, are produced. If any fresh crops are formed, or when it develops after most, if not all, of the varicella lesions have cleared off—perhaps a fortnight or more from the onset—or in cases following vaccination, or otherwise unconnected with varicella, the ulcerative lesions usually commence on the lower half of the body, especially the buttocks and thighs.† Each lesion begins as a pin's-head-sized papulo-pustule, which extends to the size of a pea or larger, ruptures, and, except on the buttocks or wherever it is kept moist, dries in the center to a scab, with the pustular border and red areola like vaccinia, and from this point follows the same course as those which started in a varicella pustule. In some cases the buttocks and parts in contact with the napkin, and sometimes the legs and thighs, are fairly riddled with ulcers of all sizes, shapes, and depths. On the trunk and

\* Models 206-209. *Catalogue*, p. 95.

† D. Heath records such a case limited to the scalp in a child of two years.

rest of the body they are not usually numerous; and though some may be very large and deep, the majority are comparatively superficial. Where the lesions are numerous and deep, there is naturally much constitutional disturbance, the temperature ranging up to 104° F. or even higher; lung complications, tubercular, pyemic, or inflammatory, are very frequent, and determine or hurry on the fatal issue. Should the child survive, it is surprising how rapidly the lesions cicatrize, of course leaving deep and indelible scars where the severe lesions have been, but some of the superficial ones do not penetrate below the papillary layer, and these heal with only slight loss of substance, and therefore temporary scarring.

*Variations.*—In some of the worst cases, where the malignant change occurs very early—*e. g.*, in a case of my own on the third day, and in W. Haward's \* on the fourth—hemorrhage takes place into the vesicles, which, from being quite clear, become almost black, perhaps the whole of them in the course of twenty-four hours undergoing this change. In my case the temperature rose to over 105° F., and the child died on the twelfth day after the change in the vesicles. Post-mortem there were numerous small, softening infarcts in the right lung, and broncho-pneumonia in the left. In Haward's case the child died on the eleventh day, and in it also there were pyemic abscesses in the lung.

On the other hand, there are cases of much milder grades than those described, and they are more common than the severe form. The ulceration may be quite superficial, the lesions reaching to the vaccinia-like stage, and then drying up, and there are all degrees, from mere excoriations to pretty deep ulceration, with or without a few lesions going on to gangrenous sloughs.

Hallopeau † describes what he considers to be a separate disease under the name of dermatitis vacciniiformis infantilis (*herpès vacciniiforme*, Fournier). The lesions are vaccinia-like in character, but are quite superficial and heal, leaving stains but no scars, with mild antiseptics such as boric acid. They occur only in young infants, chiefly where the napkin comes, especially in the folds, adjacent parts being often similarly

\* *Brit. Med. Jour.*, 1883.

† St. Louis Atlas, Plate XX., Fig. 1.

affected. In my opinion \* they are only the mildest degree of the disease under consideration. Pringle's † view, that this and the ecthyma térébrant of the French are different to the cases described in this country is, I believe, mistaken.

Sometimes the eruption is distinctly bullous, *e. g.*, in a girl of two years old it began as a bulla with clear contents half an inch across, then became pustular; other bullæ appeared, and some began to ulcerate, but no sloughs were formed, and there was no evidence whatever of varicella.

In the vaccination cases the ulcerative lesions do not start from the vaccinia vesicles, though beginning usually on the vaccinated arm. Their development and course are the same as the others, and they are of all grades of severity.

In the mildest varicella cases fresh crops of papules and pustules keep on appearing, and the process may last for weeks, accompanied by a good deal of itching, but very little if any ulceration. This is the "**varicella prurigo**" of Hutchinson.

In Atkinson's ‡ case the ulcers were chiefly on the extremities; the soft parts of one finger were completely destroyed, and there was extensive ulceration of the face, mouth, and tongue. The child had no constitutional taint, and recovered.

*Etiology.*—All the cases hitherto recorded have occurred in infants or young children; an analysis of my own and eleven of others in which the age is stated shows that by far the majority occur under one year, the figures being fourteen not exceeding one year, six not exceeding two years, and three under three years of age. S. Mackenzie had a case of a girl, *æt.* four years; the youngest was three months old.

By far the majority occur in girls; fifteen out of twenty-one cases where the sex is mentioned, and of my own cases, ten out of twelve were females.

With regard to the diseases antecedent to it, formerly, most reporters of cases accepted Mr. Hutchinson's first opinion, which he does not now hold, that they were all consequent on

\* This view is confirmed by a case of A. Fournier, *id.* which he relates the case of an infant, *æt.* sixteen months, which began as *herpès vaccini-forme* and went on to fatal gangrene. *Annales de Derm.*, vol. iv. (1893), p. 25.

† Editorial note to Figs. 1 and 2 of Plate XX.

‡ *Amer. Jour. Med. Sciences*, January, 1884, quoted in *Brain*, January, 1885.

varicella or vaccinia. No doubt varicella is the most frequent antecedent, but there are many others, as I proved years ago, and it is now accepted that, under certain circumstances, any eruption of isolated pustules may be the starting-point of the ulcers; it has also supervened on erythema nodosum with or without purpura \* (Demme and Caillaud). Among predisposing causes tuberculosis has been present in so many, as Barlow first pointed out, that it must be more than a mere coincidence. In one of my fatal cases congenital syphilis was present, in two others rickets, while a few were apparently quite healthy. A febrile condition is nearly always present, and cases after measles, scarlatina, and enteric fever are recorded. Gangrenous ulcers, of probably similar character, occur sometimes as a complication of variola in adults as well as in children.

**Single gangrenous** patches, often of large size, are also met with in infants and young children, both spontaneously and as the result of infectious fevers. They start as a vesicle, pustule, or bulla.

My then colleague, R. Parker, had a case of a girl of twelve, in whom a hydroa was aggravated by the administration of iodid of potassium into hemorrhagic bullæ, which then discharged and gave rise to extensive ulcerative and sloughing lesions, very suggestive of the disease under consideration. Audry relates a case in a woman, æt. forty-seven, in whom a bullous iodid eruption went on to ulceration and sloughing owing to the patient having continued the drug after the eruption had come out. .

*Pathology.*—Nothing is positively known about the pathology, except that Ehlers ‡ of Copenhagen has discovered the bacillus pyocyaneus in two cases of the so-called “ecthyma térébrant” in children. This has been confirmed by F. Hitschmann and Kreibich § also in two cases, who speak of obtaining pure cul-

\* Hemorrhage into the skin is always liable, if severe, to lead to sloughing ulcers.

† A. Bowes reports such a case in a child two weeks old, and refers to others. *Lancet*, August 31, 1901, p. 586.

‡ Ehlers, French Translation, *Annales de Derm.*, etc., vol. ii. (1891), p. 793.

§ Hitschmann and Kreibich, *Archiv f. Derm.*, vol. 1. (1899), p. 81. In 1888 Wickham found the streptococcus pyogenes as the predominant microbe in one case.

tures of this bacillus as a means of confirming the clinical diagnosis of the disease.

Cettinger, however, has found the same bacillus in relation to a pemphigus diphtheriticus with a gangrenous aspect, and Neumann of Berlin found it with internal and cutaneous hemorrhages. Veillon and Halle\* believe an anerobic microbe, the bacillus ramosus, to be the probable organism. Even if one of these is not the constant pathogenic agent, it is highly probable that the lesions are due to microbic infection supervening upon varicella and other pustular eruptions in children, under certain constitutional conditions, of which a febrile state, tuberculosis, and probably congenital syphilis, are the chief, but evident cachexia is not essential.

*Diagnosis.*—This is not difficult; with or without a history of varicella, the occurrence of numerous gangrenous ulcers in a young child, or even of deep ulcerations, beginning as pustules, enlarging, drying into a scab in the center, and then ulcerating, form a group of symptoms quite unmistakable.

*Prognosis.*—This is serious in proportion to the tender age of the infant, the number, extent, and depth of the lesions, the amount of constitutional disturbance, the presence of tuberculosis, pyemic, or other visceral symptoms.

*Treatment.*—This must be general and local, but the local treatment is the more important. Quinine in one- or two-grain doses in milk every four hours is often serviceable. In some of my cases sulpho-carbolate of soda in five-grain doses every three hours has been apparently beneficial, and my colleague Coutts had a rather severe case recover under treatment by opium. Any complications must be treated as they arise.

*Locally.*—I have found the best plan is to inject subcutaneously carbolic acid one in forty, near the sloughing ulcers; if the gangrenous patch is large, three or four injections round it, three or four minims in each spot, as in the treatment of carbuncle, might be necessary. This stops the extension of the gangrene and the attendant infiltration of the tissues round, and then the lesions can be treated on the ordinary surgical principles.

Wet boric lint under oiled silk until the sloughs have separated, and subsequently, if few in number, iodoform or iodol

\* *Annales de Derm.*, vol. ii. (1901), p. 401, with many references.

vaselin, and washing with one in five thousand perchlorid of mercury, will keep the ulcers septic; freshly made iodid of starch paste, painted on, is another convenient application; Pasteur of London found a warm solution of chlorinated lime on lint give most relief. These measures and the administration of concentrated, or in young infants, partially digested foods, and putting the patient in the best hygienic conditions, offer most chance of success, which is almost assured if adopted sufficiently early.

**Multiple Gangrene in Adults.** I have seen cases in adults: one was a woman, who, after suffering from some suppurative lesion of the vagina before she came to the hospital, broke out with precisely similar lesions to those of infants, in almost all parts of the body, the lesions coming in crops. They had scarcely healed before a second outbreak occurred with a rise of temperature, and this time the face was affected and disfigured with rather deep ulcers. This, it was ascertained, was in connection with secondary syphilis. She also had xerostomia of long duration.

It has also been observed in connection with the exanthemata. One such was a man, in whom the number of lesions was small, but symmetrically distributed, the condition being produced during convalescence from scarlatina; a diphtheritic-like membrane developed on the soft palate, and was succeeded by bullæ and gangrene. Hutchinson records a case of multiple ulceration after measles, but there was molecular, not massive destruction. Osler had a case connected with malaria. Many cases have been noted in enteric fever.

Its occurrence as a complication of smallpox has already been alluded to, and Dr. M. Richards, of the City Hospital, Birmingham, wrote me an account of cases observed by him of various degrees of severity—some superficial, beginning as a ring of pus round a scab; others with punched-out ulcers with or without sloughing bases; and others again beginning as flaccid bullæ with foul contents; and it would appear, therefore, to be a possible but uncommon complication of any infectious fever.

Hallopeau and Le Damany \* described a form of gangrene

\* Hallopeau and Le Damany, *Annales de Derm.*, vol. v. (1894), pp. 1264 and 1349, and vol. vi. (1895), pp. 213 and 292; also Hallopeau and Leredde, p. 435.

which commences as red papules in which a yellow slough appears when the epidermis is shed. Ulceration occurs beneath it, and spreads eccentrically until the separation of the slough, when the ulcer heals slowly. These lesions may be scattered or in small groups, attack the head chiefly, but have also been seen about the chest and arms and even on the buccal and pharyngeal mucous membranes. The condition occurs in various degrees of severity. Some are superficial and heal readily; others form a deep, dry, black slough; others get deeper with great surrounding induration; while in the worst there is a spreading indurated erythema which may extend over a large area with a huge slough accompanied by suppurating, and even sloughing of the neighboring glands. Janowsky and Mourek's case, of a man, æt. forty-four, was of this kind, and the origin was traced to a fly which inoculated the back of his hand, and produced a scar-leaving pustule. Then followed pale red flattened papules with a red areola round the hair follicles and skin glands, and in these successive gangrenous sloughs formed and spread and left pigmented cicatrices.

Cases following infection with animal poisons are recorded by several observers. Waelsch's\* case was traced to a foul morphia syringe: Gangrenous patches and abscesses killed a man, æt. thirty-eight years, in three weeks; a bacillus which did not stain by Gram's method appeared to be the pathogenic agent.

Hartzell† reports the case of a woman, æt. forty-six, which began with a wound made by a poisoned meat hook four years previously, and led to vaccine-like lesions such as have been described in children, which went on to gangrenous sloughs, and nothing but excision stopped them. He found abundant bacilli at the base of the sloughs, which stained only with gentian violet after Weigert's method, also staphylococcus aureus in large numbers.

In a case recorded by Rotter‡ the gangrene developed from pustules which formed on the thigh five months after two small

\* Waelsch, *Arch. f. Derm. u. Syph.*, vol. xxxix. (1897), p. 173. Abs. in *Annales*, vol. ix. (1898), p. 387.

† Hartzell, *Amer. Jour. Med. Science*, July, 1898.

‡ *Dermat. Zeitschr.*, vol. ii. (1895), p. 314. Abs. in *Annales*, vol. vii. (1896), p. 229.



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sores on the prepuce and penis; gangrene of the thigh supervened. Other patches formed down the leg to the ankle and up to the scrotum and penis. The areas were large and the depth down to the fascia, and there were outlying pustules, but all healed in about seven months from the outset. Thick short bacilli were found, cultivated, and successfully reinoculated, which he called "bacillus pustulo-gangrænosus."

Hilbert \* records two cases of **spontaneous gangrene of the eyelids** in female infants under one year old; a small pustule, with yellow scab, first formed without apparent cause on the upper lid, rapidly enlarged, the part beneath became gangrenous, and when the slough separated a circular ulcer, nearly an inch in diameter, was left, which healed rapidly. Both children were healthy and well nourished.

**Diabetic Gangrene.** Kaposi † describes a bullo-serpiginous form of gangrene which is apt to occur in advanced cases of diabetes mellitus. A few patches are formed on the limbs in successive outbreaks, beginning with bullæ on a slightly raised base; the bulla dries up in the center, and is occupied by a black crust, whilst at the periphery there is a ring of fluid pushing up the epidermis. The crust extends, and at the end of some days is detached, exposing the sphacelated skin, which, somewhat later, separates and leaves a red granulating surface. The resemblance of these lesions to the preceding forms is noteworthy. In addition to the multiple, there is a single variety in which portions of the extremities may slough completely off. Bartholow describes a case where there was gangrene of the little finger, but no mention is made of bullæ. Boyd met with a case of gangrene of the great toe, and cases of gangrene of the penis are reported by Fournier and others.

It is probable that ‡ the diabetic subject offers a favorable soil for bacilli or cocci, which lead to the gangrene, just as it does for the staphylococci, which produce boils and carbuncles.

\* *Viertelj. f. Derm u. Syph.*, vol xi. (1884), p. 117.

† Kaposi, *Wien. med. Presse*, quoted in *Ann. de Derm. et de Syph.*, January 24, 1884, with review of other skin lesions connected with diabetes. See also Quéhéry, "Thèse de Paris," 1885, abst., *loc. cit.*, 1885, p. 690.

‡ Grossmann, "Ueber Gangrän bei Diabetes Mellitus." A. Hirschwald, 1900, p. 134, further elaborates this view.

**Phagedena Tropica.\*** *Synonyms.*—Tropical phagedenic ulcer; Aden ulcers; Malabar ulcers, etc.

We owe our knowledge of this formidable affection chiefly to French writers, especially in Cochin China and Tonkin, where it is very rife and malignant. Parke also gave a good account of it, as seen in the Emin Pasha Expedition. It is met with in tropical latitudes all over the world—Asia, Africa, the West Indies, and Central America—and, to some extent, in more temperate climates, such as Algiers and Egypt, while it is especially rife and malignant in Cochin China, Tonkin, and the islands and shores of the Red Sea. It attacks chiefly those who are under depressing influences, such as are due to malaria, privation, overfatigue, etc. Then the smallest lesion which produces a breach of continuity of the skin gives entrance to the pathogenic microbe, and a vesicle or bulla soon forms, and from this the destructive process radiates both laterally and vertically.

The disease occurs in a mild and chronic or in an acute and severe form.

A traumatic or inflammatory lesion, often trivial, is the starting point, from which either form proceeds directly or from a supervening abscess, bulla, or vesicle.

*The mild form.*—Boinet of Tonkin distinguishes three stages:

1. Onset and establishment of the phagedena.
2. Atonic ulceration.
3. Repair.

The affected part becomes red, painful, and swollen, and exco-riated from scratching, and there is a serous or sanious discharge. The edges of the sore become swollen and indurated, and are surrounded by a dusky red areola. Spreading laterally and vertically, the borders and surface are eaten away by molecular disintegration, forming an ulcer with irregular floor covered with a grayish slough bathed in yellowish or sanious pus. When the slough is separated the inflammation becomes less active, the ulcer gets paler and may remain stationary, and gradually becomes painless, but there is still a putrid pultaceous covering on the floor.

\* *Littérature.*—Hirsch, "Phagedenic Tropical Ulcers," vol. iii. p. 690 Syd. Soc. Edit., with bibliography. "De l'ulcère phagédénique observé au Tonkin," E. Boinet, with references, *Ann. de Derm. et de Syph.*, vol. i. (1890), p. 210. one of the best accounts, founded on 615 cases, from which this article is largely derived. "The Ulcer of the Emin Pasha Relief Expedition," T. H. Parke, *Lancet*, December 5, 1891.

The general condition of the patient and the position of the ulcer determine the time of onset of the second stage, when there is vertical and lateral extension of the sore, with punched-out borders, which subsequently become indurated and everted, and fungating granulations spring up through the foul gray covering. There is a constant and copious serous discharge, but enlarged glands are rare except in broken-down constitutions. The third period of cicatrization may not begin for several months.

The atonic ulcer and the skin for some distance round it are almost devoid of sensibility, and Moisson says that if amputation is necessary the incisions must be made well above the anesthetic area, or the gangrene will probably recur in the stump.

*The severe form* is always grafted on a previous wound. The invasion is rapid, acute extensions of the gangrene recur repeatedly, and there may be dangerous complications. Gastric and slight febrile disturbances mark the period of invasion, the wound swells with or without a small subcutaneous abscess, vesicle, or bulla, which bursts and discharges a sero-sanguinolent fluid.

In the worst cases, to quote from Parke, "rapid phagedenic ulceration spreads from the seat of origin of the disease; the soft parts all yield in succession, but some much more slowly than others. An ashen-gray slough covers the affected surface; the skin and subcutaneous tissue rapidly disappear and expose the sheaths of the muscles; the muscular tissue itself decomposes more slowly; the nerves and arteries are destroyed only after a prolonged resistance; the tendons soon lose their muscular attachments, and hang about in shreds," and eventually even the bones are attacked, and the superficial layers exfoliate.

This havoc is wrought not by a continuous process, but by the frequent recurrence of acute gangrene, and the fetid sloughs are mixed with gelatiniform exudation and copious yellow serum.

The gangrene may spread into the infiltrated red edematous tissue round the ulcer, and convert it into soft, filamentous, dirty gray sloughs, like those of caustic potash. Death may ensue from the extensive ulceration, the deep burrows and irregular sinuses, or by the opening of some of the larger joints and

their subsequent suppuration. Repeated exacerbations mark the unfavorable course, while in favorable cases the discharge diminishes, the slough separates, and healthy granulation takes place. Even then, however, fresh gangrene may occur, or the ulcer may become atonic and callous, with indurated bluish-gray edges.

Cicatrization proceeds from the center to the periphery, but the sore may take from one to two years to heal soundly; for the cicatrix, while still thin, breaks down with slight friction or stretching, and if the fissures become reinoculated the whole process starts again.

The duration varies according to the age of the patient, the seat, extent, and depth of the ulcer, and the gravity of the complications, which are usually the cause of a fatal result.

The liability to slight injuries of the lower extremities, especially in bare-footed natives, explains why the ulcers generally begin on the feet, the ankle, or leg, but the thigh is occasionally attacked, and even the upper extremity has been affected, so that doubtless no part is exempt.

*Etiology.*—Although most common among the colored races who inhabit these hot countries, white people are also attacked, but less severely, unless pulled down by the cachexia induced by malaria, which offers a favorable soil, or by scurvy, famine, and physical exhaustion, which are also favoring factors. It is always worse in damp, malarial, low-lying districts, but it also occurs in non-malarial regions, such as New Caledonia and the highlands of Abyssinia.

The disease is propagated chiefly if not entirely by inoculation, and Boinet says the mild form is less inoculable than the severe form, because the serum, while it contains more cocci, has fewer bacilli, especially of the elongated form, which are the most virulent.

*Pathology.*—Boinet has found what he believes to be the pathogenic bacilli. They are aerobic, more abundant in the sloughs than in the serum, most numerous in the severe forms, sparse in the clean ulcers in the healing stage. The degree of contagion appears to be in proportion to the number of the bacilli. They also infiltrate the tissue round the ulcer, and can be found in the blood there. They are long, immovable, often straight, sometimes sinuous or undulated, are always extra-

cellular, and have a special predilection for dissociating the connective tissue fibers. He also found some smaller rods of equal thickness, but very short, with abrupt slightly rounded ends, probably derived by segmentation from the long ones. He has cultivated these organisms and successfully inoculated animals, and has furnished clinical proofs that the pus is inoculable. He thinks the water of the rice fields contains the microbe, but it cannot be the exclusive source. Blaise \* has found, associated with common bacteria, some straight or curved organisms, some distinctly spiral, but he could not get pure cultures. Le Dantec † agrees with Vincent and Coyon's observations, and says it is the same as hospital gangrene. In this Matzenauer finds an anaërobic bacillus.

*Treatment.*—Improved hygienic conditions are most important; rest, good food, quinine, and other suitable tonics are clearly indicated. Locally, for the severe forms, scraping, the actual cautery, and various caustics are recommended by French writers, but Parke found that pure carbolic acid succeeded rapidly and perfectly, "leaving, when the slough separated, a healthy granulating surface." In milder forms the indication always is to render the sore aseptically as soon as possible. Parke found permanganate of potash most useful, and when he was hard up for that, gunpowder acted efficiently. These remedies suggest iodoform and its congeners as most likely agents. Salicylic acid, boric acid, and pyrogallol acid also have advocates. Probably, in nearly all cases, the application of strong carbolic acid, and subsequently iodoform or sublimate dressings, would fulfill all requirements. Le Dantec advocates, when the ulcer is clean, firm support to the ulcers with diachylon strips.

\* "L'ulcère phagédénique des pays chauds en Algérie," H. Blaise, *Gazette hebdom. de Méd. et de Chir.*, October 10, 1897, p. 961. The patients were porters in the Madagascar Expedition.

† *Abs. Brit. Jour. Derm.*, vol. xi. (1899), p. 259.

### CLASS III.

## HÆMORRHAGIÆ—HEMORRHAGES.

### PURPURA.

*Deriv.*—*πορφύρα*, purple.

*Synonyms.*—Hæmorrhœa petechialis; *Fr.*, Purpura; *Gér.*, Purpura; Blutfleckenkrankheit.

*Definition.*—Hemorrhage into the cutis due to disease.

PURPURA must be regarded as a symptom rather than a disease, the outcome of many pathological conditions, some of which are obvious enough, while others are so obscure as to baffle investigation for the present. Some authors have restricted the use of the term to those apparently spontaneous cases in which the hemorrhages may be the only obvious symptoms, and call those hemorrhages of which the cause is known, symptomatic; but as our knowledge advances, the unknown group becomes smaller, and it is therefore more logical to consider purpura as a term synonymous with non-traumatic hemorrhage into the skin or mucous membranes.

It is, however, necessary, for the sake of making the description clearer, to treat these so-called idiopathic hemorrhages as definite varieties, which are divided into P. simplex, P. hæmorrhagica, P. rheumatica, and Hematidrosis.

Blood may be extravasated into the tissues, (1) between the layers of the epidermis, (2) into the papillæ and corium, (3) and, more rarely, into the sweat glands, hair follicles, and subcutaneous tissues.

The clinical aspect varies according to the position and extent of the extravasation, and the following terms are employed to describe the appearances thus produced:

**Petechiæ**, or spots beneath the epidermis, round, oval, or irregular, from the size of a fleabite mark up to half an inch or

more. They are not raised above the level of the skin, are of some shade of purple, and do not alter on pressure by the finger.

**Vibices**, or streaks, are long in comparison to their width, from about an eighth to one inch in diameter.

**Ecchymoses**, or bruises, are of any size and shape, and usually accompanied by swelling.

**Ecchymomata**, **Hematomata**, or blood tumors, due to the rupture of a comparatively large vessel, may be superficial or deep, and vary in extent, shape, and elevation above the surface.

**Papules** are formed when the diffusion is round a hair follicle, either independently or as a complication of other eruptions, and the names **P. papulosa** or **lichen lividus** have been sometimes employed to designate such cases. They also occur in the hemorrhagic forms of erythema, and when first formed often are of bright red tint as if ordinary inflammatory convex papules, but they do not pale on pressure.

**Hemorrhagic Bullæ** are formed when the effusion is between the layers of the epidermis, or hemorrhage may take place into a previously formed bulla.

**Hematidrosis**, or bloody sweat, occurs when the blood has escaped into the sweat follicles or ducts.

Differences are produced also when the hemorrhage occurs as a complication of other eruptions, as in herpes, pemphigus, acute circumscribed edema and other forms of urticaria, erythema exudativum, especially erythema nodosum, and ecthyma.

**Petechiæ** are much the most frequent of these lesions. When first formed they vary in color from a bright red to claret or deep purple, and as absorption takes place they change into the bluish, greenish-yellow, and brown tints of an ordinary bruise. They come anywhere, are never transitory, do not at any period disappear or alter by pressure, never increase in size except by a fresh hemorrhage, and are visible after death.

**Purpura Simplex.** This may be taken as a type of the affections to which the title of purpura is often restricted. In it apparently spontaneous hemorrhages make their appearance

suddenly, often in the night, and generally without previous symptoms. In adults the hemorrhages most frequently come first upon the lower extremities, especially the flexor aspect of the thighs and calves, but almost any part may be attacked, and in children I have seen them generally appear first upon the neck and upper part of the back, and even in the mouth. The lesions are petechial, of any size, usually roundish or oval, but may be irregular, and in rare instances, circinate (Duhring, Stelwagon). They come in crops, are usually symmetrical, but occasionally unilateral, and give rise to no inconvenience—indeed, the patient would be unconscious of them if he did not see them. The spots last until the usual changes, which occur during absorption, have been gone through, but fresh crops of petechiæ continue to appear, for a period varying from a few days to a few weeks. In exceptional cases the outbreak of purpura is preceded by lassitude, aching in the limbs, especially the calves, anorexia, and general malaise; but these symptoms are more common, though not invariably present, in the more severe forms of purpura. One of my cases, a woman æt. twenty-nine, had suffered from repeated attacks for twelve years on the lower limbs, chiefly below the knee, so that the legs were of a deep sepia tint all over. She was subject to anemia, but if she took tonics had epistaxis.

**Purpura Senilis.** Bateman \* first described this form, which occurs only in the forearms in very old women. "It appears principally along the outside of the forearm in successive dark purple blotches of an irregular form and various magnitude. A constant series of these ecchymoses had appeared in one case during ten years, and in others for a considerable period; and in all the skin of the arms was left of a brown color." Unna has revived interest in this trivial condition, and from microscopic investigation concludes that it is primarily from diapedesis, but slight traumatism, *c. g.*, scratching, may lead to more extensive hemorrhage by rupturing the vessel.

**Purpura Hæmorrhagica** (land scurvy, or morbus maculosus Werlhoffii) may be regarded as an exaggerated P. simplex, and

\* Bateman's Atlas, 1828, Plate XXX., and Unna, on "Purpura Sénile," *Maladies Cutanées*, vol. v. (1896), p. 129 (Translation).

is often preceded, in addition to the above symptoms, by headache, great debility, joint pains, which are sometimes severe, and convulsions. On the other hand, there may be no symptoms at all before the hemorrhages, or *P. simplex* may develop into this form. The lesions present every variety of aspect; beginning upon the legs and lower part of the trunk, they rapidly involve, by successive crops, the whole of the body surface. Sooner or later the hemorrhages occur internally, especially from mucous membranes and into the parenchyma of organs and various cavities, and epistaxis, hemoptysis, hematemesis, or hematuria may ensue, so profusely as to rapidly undermine the strength of the patient, and lead to speedy death by exhaustion. The fatal event may also be produced by the position of the hemorrhage, *e. g.*, in the meninges, or brain substance. On the other hand, the bleeding may be more moderate and continue for a few weeks, or may cease altogether in about a fortnight, either abruptly or gradually, the general health being affected in proportion to the amount of the hemorrhage.

There are also cases of purpura with elevation of temperature, or *P. febrilis*, but probably they are not all of the same nature, as in some the fever precedes, and in others follows, the purpura; in the latter case, possibly due to the absorption process, and where the fever occurs in the latter stage of *P. hæmorrhagica*, Immerman suggests that it may be due to the anemia. Some authors limit "Werlhoff's disease" to cases in which there are violent hemorrhages without any other symptoms or traceable cause, but this is an artificial division.

**Peliosis, or Purpura Rheumatica**, is described with the exudative erythemata, with which it agrees in all its characters, except the hemorrhages, which have in rare instances developed into *P. hæmorrhagica*. See also *Erythema Hæmorrhagicum*.

**Hematidrosis** is described with diseases of the sweat glands.

*Etiology*.—Purpura occurs in both sexes and at all ages. The causes of cutaneous hemorrhages are very numerous, and may be classified under five heads:

1. *Certain blood alterations*.—(a) Specific fevers, especially typhus, variola, hæmorrhagica, and epidemic cerebro-spinal meningitis; less often, typhoid, measles, scarlatina, acute septi-

cemia, pyemia, and syphilis, both congenital and acquired, some forms of pneumonia, probably from pneumococci; Sansom records a case which followed influenza; (b) snake-poison; (c) some drugs, as iodin, iodid of potassium, quinine, salicylic acid, copaiba, belladonna, ergot of rye, chloral, chloroform inhalation in the early stage, benzoic acid inhalation, phosphorus, mercury, and the mineral acids. Purpura is produced by drugs such as the above only where there is an idiosyncrasy in the individual; various toxins may produce it, antidiphtheritic serum injection, general gonorrheal infection, etc., (d) certain general diseases and cachexiæ, as scurvy, hemophilia, leukocythemia, pernicious and other anemias, rickets (scurvy-rickets); cancer, sarcoma, and tuberculosis; the last is rather rare, but purpura may precede, occur in the course of, or towards the termination of phthisis or of general tuberculosis.\*

2. Many diseases of the *viscera*, including some of those of the spleen, liver (especially cirrhosis† and chronic jaundice from any cause), intestines, kidney, and especially from chronic Bright's disease, but also from acute nephritis; the lungs, especially pneumonia, and the cardio-vascular system, acting probably and mainly through the sympathetic. Some of these visceral changes may act by allowing micro-organisms or their toxins to enter the blood stream.

3. *Want of support to the vessels*, due to (a) relaxation of the tissues, as in old age, getting up after long illnesses, parturition, etc.; (b) the existence of other eruptions, especially bullæ, wheals, etc.; (c) diminished atmospheric pressure.

4. *Sudden changes in the circulation*, as in purpura of the newborn (*P. neonatorum*). Herbert Spencer‡ has shown that visceral hemorrhages, especially into the supra-renal capsules, are very frequent in stillborn infants, but they are chiefly due to external mechanical causes, and are not true purpura.

5. *Diseases of the nervous system*.—(a) Functional, as in connection with shock, grief, epilepsy, angina pectoris, and other neuralgias; (b) organic, as in tubercular meningitis, plugging of

\*Abs. of a paper by E. Cohn in *Brit. Jour. Derm.*, vol. xiv. (1902), p. 79. gives several quotations and references.

† In an alcoholic cirrhotic patient of mine hemorrhage into the skin of the face and hemorrhagic bullæ on the soles preceded death by a few days.

‡ "Trans. Obst. Soc.," vol. xxxiii., 1891.

cerebral sinuses and some other serious lesions, also in posterior myelitis, injuries to nerves, etc.

Among all this long list of causes, in only a few, viz., the first three specific fevers, and scurvy, hemophilia, and snake-poisoning, can cutaneous extravasations be considered a common event. And as they are only a part of many other hemorrhages and lesions, they are not usually spoken of as purpura. In most of the others it is quite exceptional, while in a great number, perhaps the majority, of cases of purpura, the cause is more or less obscure.

*Pathology.*—The evidence grows rapidly as to the importance of toxins, whether of bacterial or other origin, in the production of probably all the severe forms of purpura and of many of the milder forms.

Oddo and Olmer after extensive investigations conclude: That while purpura may occur without recognizable visceral lesions, they are frequently present, before, during, or after the purpura.

The antecedent diseases are either (a) those which determine the mode of entry of infective material, generally bacterial, into the circulation, such as bronchitis, pneumonia, enteritis, or tonsillitis; or (b) those which produce the purpura by auto-intoxication or alteration of nutrition, such as diseases of the liver and kidneys, especially cirrhosis and nephritis. Cardiac disease, another factor, they think, acts through the liver and kidneys. The kidneys and liver (as in acute yellow atrophy) and gastro-intestinal canal may also produce toxic infection, which predisposes to what they call the cachectic purpuras. Some cardiac, pulmonary, and splenic diseases, and meningitis and myelitis also, play a part in this form. The only visceral sequel of purpura besides those due to hemorrhages into them is Hanot's \* hypertrophic cirrhosis of the liver with intense pigmentation.†

The evidence on which the bacterial origin of many cases of purpura rests is (1) on its occurrence along with recognized bacterial diseases, (2) on its occurrence in groups, and in a few cases (3) the actual discovery of organisms in the blood. Thus it

\* *Archiv Gén. de Méd.*, February and March, 1900. Abs. *Brit. Med. Jour.*, May 12, 1900.

† A good example by Apert, *Bulletin Médicale*, July 10, 1898, p. 665. Also in "Thesis," 1897, Apert discusses pathogeny and varieties of purpura.

is known to occur with acute specific diseases. Groups of cases have occurred among soldiers in barracks and in schools.

Bacteria or micrococci have been found blocking vessels beneath purpuric patches by Cohnheim, Cornil, Watson Cheyne, Letzerich,\* Cassel, Wilson, etc. Pneumococci have been found by Glaisse, Ch. Levi, etc. Streptococci were found in the blood of a case under Cureton,† of the Salop Infirmary. Michel-Dansac found the bacillus coli in the spleen and blood in a case which supervened on leukocythemia. The anthrax bacillus, the bacillus pyocyaneus, and the staphylococcus aureus and albus have been found by different observers. That the intervention of bacteria is not always necessary is shown by its occurrence after diphtheria anti-toxin and by Weir Mitchell's experiments with snake-poison, in which contact of the poison with the vessels produced weakening of the vessel walls, and rupture in a few minutes, which was general in distribution, when the poison was absorbed. Another illustration of the rapidity with which animal poisons produce purpura is a case by Mason,‡ in which a man was taken with hemoptysis six hours after an abrasion by a sheep's foot, and in twenty-two hours there was hemorrhage everywhere. Bacilli were found.

Graham Little § has collected eleven cases in which severe purpura was associated with hemorrhage into the supra-renal capsules, and was enabled to demonstrate streptococcus pyogenes in the blood-vessels in two of his own cases. He explains this by deducing, from the supposed physiological action of the suprarenal capsules, that the first result of the arrest of supra-renal secretion would be dilatation of the blood-vessels and diapedesis, especially where the surrounding tissues were lax. Rapidly fatal cases of hemorrhage into the suprarenal capsules without purpura are also on record. Of the different micro-organisms found in the blood in a considerable number of cases, streptococcus pyogenes was the most frequent.

\* *Ætiol. u. die Kenntniss. der Purp. Hem.*, with plate (Vogel, Leipzig, 1889). He claims to have found a specific bacillus, and thinks the liver is the chief organ of dissemination.

† *Lancet*, February 25, 1899, p. 515.

‡ *Australasian Med. Gaz.*, May 20, 1898, p. 203.

§ Purpura with hemorrhage into the suprarenal capsules. *Brit. Jour. Derm.*, vol. xiii. (1901), p. 445. gives good review of micro-organisms found in purpura and many references.

The mechanism of purpura \* varies greatly. Blood may escape from the vessels by rupture, diapedesis, or by transudation of blood-coloring matter only, but there is no doubt that, in the majority of cases, rupture of the vessel takes place. This may occur from:

(a) *Increase of blood pressure* behind the point of rupture, especially if suddenly produced. The commonest cause of this is some obstruction in a vessel, produced by (1) stasis, either from inflammation in the part, or from some external pressure; (2) thrombosis or embolism, which may be due to an ordinary blood clot, masses of leukocytes, as in leukocythemia according to Ollivier and Ranvier, sarcoma cells, hematin, fibrin, colonies of bacteria or micrococci, or masses of endothelial cells from desquamative arteritis, as described by Hayem. The extravasations produced by all these blocking particles would thus be hemorrhagic infarcts. Extreme contraction of the vessels on the one hand, or dilatation on the other, either from active or passive congestion, may also lead to rupture of vessels.

(b) *Changes in the vascular walls*, from inflammation or degeneration, *e. g.*, lardaceous (Wilson Fox), acting either by weakening the resistance of the vessel wall or by favoring obstruction; want of support to the vessels being a predisposing condition, and the position of the lesions being often determined by gravitation.

(c) *Changes in the nervous system* acting by producing (a) alterations in the caliber of the vessels, and (b) alterations in the nutrition of the vessel wall. Schwimmer thinks that purpura is always a tropho-neurosis, but this is overstating the case.

The influence of the sympathetic has been shown by the destruction of the sympathetic ganglion in the abdomen of a frog being followed by hemorrhages in the lower limbs; and Hale White † found acute inflammation of the semi-lunar and cervical sympathetic ganglia in a case of purpura hæmorrhagica. It is probable that toxins act through their influence on the nervous system.

It is only through the influence of the nervous system that we can explain such cases as Mitchell's, of neuralgia with extrava-

\* Sack. *Monatsh. f. Derm.*, vol. xx. (1895). and Unna's "Histopathology" may be referred to.

† *Med. Chir. Trans.*, vol. lxxviii. (1885), p. 231.

sations at the point of greatest pain, the purpura recurring with the pain repeatedly; those following injuries to nerves in the area of the nerve affected, cases occurring after severe chills, those in association with ague, and in the early stage of chloroform inhalation, even when there has been no struggling (Morel-Lavallée). It is, however, generally impossible to determine how much is vaso-motor and how much is trophic, or whether there is a combination of the two. The same difficulty exists also for other pathological conditions producing purpura. It is not always possible to say into which category any particular case should be placed, either because more than one theory would fit the facts, or from there being a combination of causes present. Apert \* has tried to divide purpuras clinically according to their pathogenesis. Those due to toxins, especially in the blood, are peliosis rheumatica or exanthematic purpura; (2) microbic emboli, so-called infectious purpuras, with discrete petechiæ and severe general symptoms; (3) pathogeny unknown: Werlhoff's disease with copious hemorrhages and no other symptoms. Besides these are secondary cases and mixed types.

Hayem found a diminution of the hematoblasts, which play an important part in the clotting of the blood and arrest of bleeding; but the pathological changes found in the blood have been so diverse, and are individually founded on so few observations, and those open to fallacy, that they need not be discussed further.

*Diagnosis.*—*P. simplex* has to be distinguished sometimes from *erythema exudativum* and from fleabites. The fact that the purpura spot is unaltered by pressure distinguishes it at once from ordinary erythema exudativum, which it only resembles when the purpura is of a brighter color than usual. The later stage of *flea and bug bites* is exactly like the petechiæ of disease; but the bites do not come suddenly in crops, have a ring of congestion round them at the commencement, and a central punctum is discernible for the first few days.

Purpura hæmorrhagica may be confused with *scurvy*, but absence of vegetables in the dietary is never an etiological factor in *P. hæmorrhagica*, while the distinctive premonitory symptoms—great prostration, frequent faintings, swelling of the gums,

\* *Loc. cit.*

loose teeth, and the condition of brawny swelling of the limbs—are always present in a well-marked case of scurvy. The hemorrhages of *hemophilia*, *leukocythemia*, and *pernicious anemia* are distinguishable from *P. hæmorrhagica* by the symptoms of those conditions being associated with the hemorrhages.

*Prognosis.*—The majority of cases terminate favorably, but the duration is very variable, and, as we have nothing to guide us as to what course the case will pursue, even an apparently *P. simplex* sometimes passing without assignable cause into *P. hæmorrhagica*, it is well to be guarded in prophesying the termination.

*Treatment.*—Rest in the horizontal position is one of the most important precautions, and should be rigorously insisted upon in all cases except the slightest. In *P. hæmorrhagica* every effort should be made to support the strength from the first, by nourishment in an easily assimilable form, but diet has no direct influence upon the hemorrhage. The drugs upon which most reliance can be placed are turpentine internally and by inhalation, the liquid extract of ergot, and subcutaneous injections of ergotin, chlorid of calcium, sulpho-carbonate of soda, intravenous injection of perchlorid of mercury: and of these turpentine is one of the best; ℥xv to ℥xx ter die is the dose. Poulet strongly advocates nitrate of silver gr. 1-8 to gr. 1-6, made into a pill, and taken three times a day, while perchlorid of iron, quinine, and general astringents have their advocates.

Sansom gave ʒss doses of sulpho-carbolate of soda every four hours in two severe cases, and attributes recovery to the drug. Wright's experiments with chlorid of lime on increasing the coagulability of the blood has led to its employment in purpura, and, it is said, with most satisfactory results. Thirty grains three times a day is the usual dose, but large doses may be given. A full diet, it is said, aids its action. Lusignoli injected perchlorid of mercury 1 in 1000 intravenously with marked effect. Alexeier gave fresh bone marrow of a calf, crushing the bone in tepid water. The patient took ʒjss a day of the liquid, which was first filtered and then mixed with milk. The hemorrhage ceased. Shand of Glasgow records a case in the *Lancet* of July 9, 1879, where faradization of the whole surface seemed to have been effectual. Shoemaker recommends ʒss doses of the fluid extract of *hamamelis virginica*. Adrenalin might be

tried. From what we already know of its pathology it is not surprising that all remedies fail in some cases, and it is well to have several alternative remedies. Ice, internally and externally, is sometimes useful, and local astringents may be employed in severe cases; a four per cent. solution of hydrochlorate of cocaine, painted on, stopped a severe hemorrhage from the gums when other hemostatics had failed.

Where hemorrhages are due to a general condition like scurvy, the treatment for such a condition would be demanded.

Slight cases require no treatment.





ICHTHYOSIS.

To face page 559.

## CLASS IV.

### HYPERTROPHIÆ—HYPERTROPHIES.

THIS group includes all kinds of abnormal increase generally produced by the increased number of cell elements of the whole, or any part, or combination of parts, of the skin structures. There may be real overgrowth or only an accumulation of the cell elements, which are the "stasis tumors" of Unna.

Thus, the epidermis may be affected exclusively, as in callosities; while in a wart, or other papilloma, the papillæ are involved as well; or only the pigment of the epidermis may be increased, as in chloasma or lentigo; or again, there may be increased growth of hair, as in hirsuties; or of nail, as in onychogryphosis; or of all the tissues, as in elephantiasis. This overgrowth generally takes place without any signs of inflammatory effusion, but in scleroderma there is effusion of cells round the vessels, though, even then, it is not demonstrably inflammatory; whilst in elephantiasis inflammation plays the chief part in its production.

Hypertrophy, therefore, is the outcome of many different pathological processes, and is a result rather than a cause of disease.

### ICHTHYOSIS.\*

*Deriv.*—*ιχθύα*, fish skin, from *ιχθύς*, fish.

*Synonyms.*—Xeroderma ichthyoides; Ichthyosis vera; Fish-skin disease; *Fr.*, Ichthyose; *Ger.*, Fischschuppenausschlag.

*Definition.*—A disease of development with deficient skin secretions, characterized by extreme dryness of the skin, and more or less formation of scales, epidermal plates, and warty-looking growths.

\* Illustrated in Author's Atlas, Plate XLIII., Ichthyosis Simplex, XLIV. Figs. 1 and 2. and XLV., Ichthyosis Hystrix, XLVII., Ichthyosis congenitalis, of moderate intensity, the child surviving for some weeks. "Harlequin Fetus" is either still-born or lives a few short hours or days.

*Varieties.*—Ichthyosis in one or other of its forms is a fairly common disease, but varies immensely in its development. Three clinical types may be recognized; the first two are general, and are called xerodermia and ichthyosis simplex; the third, ichthyosis hystrix or hystricismus, is more or less localized. All the varieties are usually of congenital origin, though rarely recognizable till some weeks or months after birth, and it is not until the second year or later that it becomes very conspicuous. The term ichthyosis congenita is reserved for the comparatively rare cases in which there are defects at birth.

Acquired ichthyosis in appearance is indistinguishable from the others, but it is nearly always secondary and seldom general. Xerodermia and ichthyosis simplex are not really distinct, the milder being connected by every gradation with the more severe form, but their separate consideration is convenient for clinical description.

*Symptoms.*—**Xerodermia** is the commonest and mildest form. In a marked case the skin is rough, dry, and dirty-looking, with the natural lines more marked than usual, from the thickening of the epidermis. The roughness is produced by slight furfuraeous scaliness, and also by the prominence of the hair follicles, produced by the condition known as **keratosis pilaris**, which is always present, often in a high degree, on the extensor surface of the limbs and trunk. Xerodermia may be present in so slight a degree that the patient is not aware of it, but such persons do not perspire, and their skin “chaps” and is more vulnerable to slight irritation.

In **ichthyosis simplex** the whole surface has a tessellated appearance, from being covered with large angular, dirty-white finely corrugated, papery scales, which are adherent, and therefore slightly depressed in the center (**I. scutellata** of Schönlein), while the edges are detached, transparent, and shining (**I. nacrée** of Alibert, or **I. nitida**). These and the following variations are often most characteristically seen on the leg near the knee and ankle, the upper part being often very glistening, or even pearly white, while the thick scales are seen lower down. In still higher grades the scales adhere together to form thin plates, and being of a greenish tint, look something like a serpent’s skin (**I. serpentina**; when there are still thicker plates, the appearance of a crocodile hide is produced (**I. sauroderma**). The older the

plates the darker they become, so that they may vary from olive green to black (*I. nigricans*). While all these fanciful names are to be met with in literature, and are therefore explained, their use should be avoided, as they only produce confusion. These extreme conditions are rarely extensive, and usually only occupy certain regions, a milder form prevailing elsewhere; for, although a universal disease, it is unequal in its severity in different regions, and is always more developed on the extensor surfaces, especially over the tips of the elbows and knees, where it may attain to the higher condition of warty growths or plates, even when the disease is moderate elsewhere.\* On the other hand, the flexures are comparatively free, often appearing quite normal; the limbs are worse than the trunk, and the legs than the arms; the palms and soles are not much affected, but are harder and smoother from the absence of the small natural lines, while the major ones are deepened.† The hair is dry, harsh, and dull-looking, and the scalp branny; the nails may be pitted and brittle; while the face, though relatively less affected, is rough and very often eczematous. In bad cases there may be a reduction in size of the ocular slit, or ectropion, from contraction of the dry skin, and atrophy of the lobes of the ears. Unna says there is never ectropion except in *I. congenita*, and that the face is unaffected. In a case of my own the first sign was a roughness on the forehead when three weeks old, and it was then shown at the Dermatological Society. Six years later it was again shown with well-marked xerodermia. Also, in a case of Kaposi's,‡ the face was extremely affected and the eyelids contracted.

Itching is frequently experienced, especially when the clothes are taken off, but it is never severe unless eczema is present, to which the ichthyotic skin is very liable when exposed to cold, and also to painful fissures or "chaps" from the same cause. The fully developed ichthyotic skin does not perspire sensibly, but some sweat may be seen in the flexures, especially the axillæ, on exertion or in very hot weather, and occasionally on the face, palms, and soles. In one of my cases there was con-

\* Plate LI., Fig. 2, Author's Atlas, illustrates this.

† The rare condition sometimes called *Ichthyosis palmæ*, is described under *Keratosis Palmæ*.

‡ *Ann. de Derm.*, etc., vol. vi. (1895) p. 686. Report of Vienna Derm. Soc

stant hyperidrosis on the palms and soles, with occasionally moisture on the back of the hands and forehead, while there was a high degree of ichthyosis on the rest of the body. The patients feel much relieved by any perspiration, and their condition is notably ameliorated in the summer.

The sebaceous secretion is also deficient, though not wholly absent, for the horns and plates have often a greasy feel, and ether will dissolve out a good deal of fluid fat and stearin. Though the patients are always thin, the general health is good as a rule. Asthma is said to be a frequent concomitant, though very few instances of such an association have fallen under my notice. The ordinary form of the disease tends on the whole to get worse, rather than better, as the patient grows up, though there may be some remissions, according to the season and to the amount of attention given to the skin. After full adult age is reached some improvement appears to take place in cases of moderate severity.

*Acquired ichthyosis* is rare, especially generalized cases. In one of my patients it came on when seventy-six years old after a period of poor living, became universal, and remained without change until his death, six years later; he resembled a typical ichthyosis \* of the ordinary form. This patient sweated freely until the disease came on. Another man, æt. thirty-six, with marked ichthyosis all over, except the face and upper part of the neck, which sweated freely, stated that his skin was quite smooth up to the age of thirteen, when it became rough after scarlet fever. A third began at sixty-four, and was well marked; he suffered from habitual looseness of the bowels, four or five motions a day. Tommasoli's case began at the age of seventeen years. Mapother's case was a woman of forty-two; the disease came on while suckling; the axillæ, groins, and breasts perspired, but there were horny plates on the limbs, and the general surface was xerodermatous. A few other cases are scattered through literature. In the Sandwich Islands an acquired ichthyosis is common in those who chew the sialogogue piper methysticum to make "ava." Somewhat more common are local ichthyotic developments, especially in connection with neuritis from injury or disease; and Ballet and Dutil have observed it in tabetics. But Unna and others refuse to regard these as ichthy-

\* Author's Atlas, Plate XLIII.

osis, Unna calling them "stagnation keratoses," classing them with the indurations seen in association with varicose ulcers and elephantiasis nostras.

**Ichthyosis Hystrix** is much rarer, and differs in so many ways from the other congenital forms that many regard it as a totally different affection, but there are connecting links with the commoner variety. Lennhoff in 1893 showed at the Berlin Dermatological Society four sisters: two had slight xerodermia, one well-marked ichthyosis, while the fourth showed a transition to *I. hystrix*. It is never general, though it may be widely distributed, and occasionally certain parts may be in the *hystrix* condition, while the rest of the skin is xerodermatous, but in the majority of cases the intermediate skin is perfectly healthy; moreover, the disease is seldom symmetrical, is often unilateral,\* and sometimes sharply limited on the trunk by the median line. It is usual to see it in lines running longitudinally on the limbs and transversely on the body. The face is rarely affected, or only in a minor degree.

The lesions vary from small pin's-point-sized, papillary growths covered with a horny cap, which forms a nail-head-like prominence on the skin, up to warty, dark greenish, vertically striated, horny masses, projecting half an inch or more above the surface, with a wide base, and truncated, conical shape, like limpet shells. When the horny part is soaked or pulled off, hypertrophied papillæ are brought into view. Inconvenience is only experienced when the growths are in awkward positions, such as the palms and soles, on which one or more bands are common, or when the horny tops are torn off too roughly by catching in the clothes, etc.; but they are often shed spontaneously without any pain.

The extreme instances of widespread horny growths are sometimes exhibited at shows as "Porcupine men," as in the well-known Lambert family, in which it existed in nine males of three generations. The warty projections of the first affected were cast off periodically.

**Ichthyosis Hystrix Linearis** is the minor degree † where

\*This is so in my Atlas case; but, as frequently happens, there are some patches on the left limb as well as the right.

† An interesting series of illustrated cases was published by Stephen

only a single tract is involved. It is reported from time to time under various names, according to the fancy of the author, *e. g.*, *nævus verrucosus*, *nævus papillaris*, *nævus neuroticus unius lateris*, nerve *nævus*, neuropathic papilloma, papilloma neuroticum, etc. This form is rarely hereditary. Many authors deny that these cases belong to ichthyosis hystrix. The proofs that they do lie in the facts that the individual lesions are exactly similar to what may be found in acknowledged cases of ichthyosis hystrix; and as regards distribution, there are all grades, from a single line to the widespread unilateral forms previously described.

Unna \* is very strongly against their identity, but he restricts I. hystrix to cases with horny outgrowths on the plates of the higher degree of I. simplex, and in which there is a general ichthyosis. This, I think, is too narrow a view, and not in accord with clinical experience. Morrow † also differentiates them.

The anatomical cause of this linear distribution is much disputed; for a long time it was almost an axiom that it was in the course of cutaneous nerves, but close investigation showed that it did not always correspond with single nerve territories, and it was suggested that the lines of Voigt, *i. e.*, the boundary lines of the nerve territories, governed the distribution. Others said that it followed the lines of cleavage of the skin (*vide* p. 45); a fourth theory was that it was in the course of the blood-vessels; fifth, that it corresponded with the metameric segments of the body; and, sixth, that it corresponds with the embryonic sutures and follows the direction of growth of the tissues.

D. W. Montgomery, ‡ after arguing out the question, came to the conclusion that the sixth theory is the correct one, but in

Mackenzie in the *Illust. Med. News*, November 3, 1888, p. 123. See also Phillipson's two cases setting forth Unna's view, *Monatsh. f. prak. Derm.*, vol. xi., 1890.

\* Unna's *Histopathology*, p. 332.

† Morrow's article is in *N. Y. Med. Jour.*, January 1, 1898, with chromolithograph. He calls these lesions systematized or linear keratotic nevus, but such a name would fit equally well the more extensive I. hystrix.

‡ D. W. Montgomery, "The Cause of the Streaks in *Nævus Linearis*," *Jour. Cut. and Gen.-Ur. Dis.*, vol. xix., 1901, October; numerous references.

my opinion no one theory is applicable to all cases, and each should be studied on its merits.

Two instances of mental weakness associated with very extensive cases have come under my notice, and other congenital

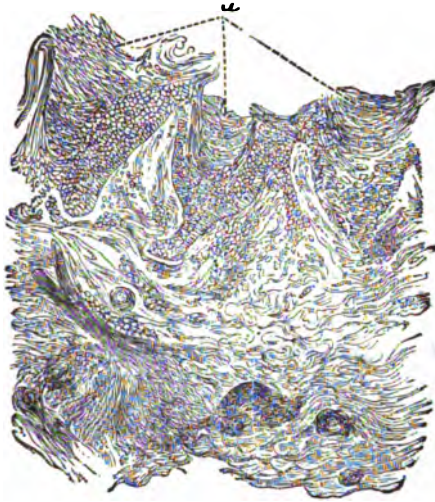


Fig. 27.—Ichthyosis hystrix.  $\times 120$ .

The horn has fallen off in preparing the specimen, but the horny layers can be seen at *a*, dipping down into the interpapillary part of the rete, which goes deeper than natural into the corium and produces enlargement of the papillæ.

defects are occasionally observed. Of these defects of the ear are most frequent.

In an unique unilateral case of Dr. Church the mucous membrane of the cheek, soft palate, and tongue was affected on the same side with papillary growths.

Thibierge \* also reports a case in which the buccal mucous membrane was corrugated like a scrotum; it was of opalescent tint. The tongue was similarly but more slightly affected. There was a high degree of general ichthyosis. But for these exceptions it might be said that ichthyosis never affected the mucous membranes, the so-called "**ichthyosis linguæ**" being an acquired affection of a totally different origin.

\* *Annales de Derm.*, etc., vol. iii. (1892), p. 717.

I. *hystrix* \* develops quite early, as a rule, six weeks or two months being a common period for it to be first noticed, but it too may be present at birth.

**Anatomy.**—The morbid anatomy of ichthyosis *hystrix* has been investigated by Kaposi and myself. Kaposi's observations are quoted in every text-book, so I will give my own only. They were made on some warty-looking growths upon the flexor surface of the forearm, from a highly developed case.† The papillæ and their vessels were much enlarged, the Malpighian cells adjacent to the papillæ were normal, but, instead of the layers of intermediate cells, which in health fill, or, so to speak, level up, the interpapillary spaces, and so form a nearly plane surface, on which the horny layer rests, the strata of horny cells dipped deeply down into the interpapillary spaces, so that the hyperplastic corneous layer followed the outline of the papillary layer, with a comparatively thin layer of rete cells intervening. The horny cap consisted of closely adherent, stratified layers, with large spaces interspersed here and there. Each of the vertical columns sprang from a separate papilla. This description differs from Kaposi's, who figures the rete as almost unaltered in its outline. Some sections did not show this dipping down of the horny layer to so great an extent as others, and so approached the condition which Rindfleisch describes as appertaining to ordinary warts, and which he thinks distinguishes them from the ichthyosis *hystrix* condition; but this is only approximately true, as the horny layer in many warts does to some extent follow the outline of the papillary layer. Unna's views have been referred to already.

**Ichthyosis Congenita.** Either after the removal of the *vernix caseosa*, which may be very thick, or, as the *skin* dries, it is noticeably red, smooth, and shining at first, but soon becomes dry and rough; or, more rarely, actual plates are present in the most severe cases, constituting the so-called "**Harlequin fetus**," of which there are specimens in University College, Guy's Hospital, the London Hospital, and the Royal College of Surgeons' Museum. The whole surface of the body is thickly covered with fatty epidermic plates, some a sixteenth of an inch in thickness, which are broken up by horizontal and vertical fissures, and arranged transversely to the axis of the body, like a loosely

\* Duckworth, in *St. Bart.'s Rep.* for 1873, p. 108, reports a case of I. *hystrix*, in which there were red spots at birth, and in three days there was "heaping up" upon them. Hutchinson, in his "*Lectures on Clinical Surgery*," vol. i. p. 161, relates a case where there were plates at birth and the child survived.

†*Clin. Soc. Trans.*, vol. xii. p. 181, with plates.

built stone wall. These fissures, after birth, may extend down into the corium, and produce much pain on movement. Owing to the stiffness of the skin, and also often from its contraction, the eyes cannot be completely opened or shut, and there may be ectropion; the lips are too stiff to permit of sucking, and are often everted; the nose and ears are atrophied; the toes are contracted and cramped; and the child, if not born dead, soon dies from loss of heat and starvation.

Where the disease is less severe the child may survive for ~~some~~ time. In February, 1890, a male child, one month old, with ichthyosis, was admitted under me at the East London Hospital for Children. The condition was present at birth. The child was fairly well nourished and well formed, except the ears. The whole skin was dry and hard, as if painted with a thick coating of collodion, which was broken up into large thin plates by deep sulci, which followed the natural folds. The surface of the plates was quite smooth and parchmentlike. The child lived three months, but its vitality was low all along. Hallopeau had a similar case. Plate IX. of Hebra's Atlas is also of this type, and so are two cases of G. T. Elliot of New York, and a case by Graäs and Török. In Róna's case, there were discrete reddish spots soon after birth which enlarged, in a few weeks there was exfoliation, and at two months there was collodionization and constant desquamation. The child died at four months, having previously had cutaneous suppurations. A child of the same parents, æt. eleven years, showed the disease at three months which increased to a severe condition.

All these cases are considered by Hebra and Kaposi to be due to **general seborrhea**, and not to ichthyosis (*I. sebacea*). With this I cannot agree. Mr. Sutton\* was kind enough to give me some skin from his case, and I found enormous thickening of the horny layers (mixed with fat), which dipped down into the interpapillary part of the rete, just as in ichthyosis hystrix. This part of the rete exhibited considerable increase, both vertically and laterally, so that the papillæ were proportionately elongated and narrowed, and almost filled with vessels, which were dilated both here and at the upper part of the horizontal layer. In the scalp the hairs went straight at first, but were lost eventually in the

\* Shown at the *Med. Chir. Soc.* March 8, 1886, and published in "Transactions" of that year, vol. lxi. p. 291, with colored plate and bibliography.

horny plates. The sebaceous glands were poorly developed, some only consisting of a single narrow acinus, or a very small gland with four or five acini. There were very few sweat glands in this case, but Caspary in his described them as large and numerous. The anatomy certainly resembles that of ichthyosis, and I consider it a true ichthyosis congenita, due to a defect in the keratinizing process in the rete.

In the collodionized infant above referred to the conditions were great and nearly uniform thickening of the homogeneous horny layer, which dipped into the infundibular follicular orifices, but did not line them in the same way as in the "harlequin fetus." The stratum granulosum was well marked, the rete apparently normal, except that the basal cells were not differentiated as much as usual. There was scanty lymphocyte infiltration in the papillary layer, but the papillæ were not enlarged. Hairs were present in twos or threes. The sebaceous glands were rudimentary, while the sweat coils were abundant and well developed. In the fat layer the nuclei of the cells were conspicuous. Unna considers the condition quite different to ordinary ichthyosis, calls it *hyperkeratosis universalis congenita*, classes it as a stagnation tumor, and says that "all the histological phenomena may be ascribed to one cause, viz., to a firmer connection of the epithelium mainly limited to the surface," and that the skin is therefore too small for the body, hence the fissures described on the surface and the ectropia and contractions. His other distinctions from ordinary ichthyosis are as follows:

In ichthyosis ectropion and contractions unknown. (This is incorrect.) Ichthyosis has definite regions of predilection. The palms and soles are never affected, and the face and neck rarely. (This also is incorrect as an absolute statement.) In ichthyosis the affected areas are dry, and it is difficult to induce sweating. In I. congenita the hydrosis is normal. The anidrosis of Caspary's case, he says, is exceptional. (In my second case also there was anidrosis, although the sweat glands were well developed.) The follicular apparatus of the skin in ichthyosis is normally developed, but plugged in I. congenita atrophic or absent.\*

Many of these distinctions break down on closer examination. Bowen considers that there is a special layer of cells analogous to the epitrachial layer of certain animals which is present in a three-month's fetus, but normally disappears at the seventh month, but in the "collodionized" forms of ichthyosis congenita it persists after birth.

Riecke's † recent observations on two old museum specimens at Leipzig lead him to conclude that I. congenita is a developmental anomaly *sui generis*. The pathological changes are excessive formation of aggregations of horny cells, as in ordinary ichthyosis, with marked cornification about the hair follicular orifices. The development of the stratum granulosum, rete, and papillary layers are practically normal. He disputes the statements of Unna and others that the number of hairs, sweat and sebaceous glands are abnormally high or low.

\* "Histopathology," p. 1157. Some references.

† E. Riecke, "Ueber ichthyosis congenita," *Archiv f. Derm. u. Syph.*, vol. liv. (1900), p. 289, with colored illustrations and many references.

G. Finizio,\* on the other hand, found the stratum granulosum absent, the rete with exaggerated proliferation of variable thickness, the papillæ large, numerous, and richly vascularized, the derma with abundant lymphoid infiltration, the sebaceous glands well developed, and the sweat coils normal. Hans,† while preferring Unna's title, asserts that it is a true ichthyosis. It is obvious, with these conflicting statements, that dogmatic assertion of the nature of the condition is out of place.

*Etiology.*—The disease is congenital, and in many cases, but by no means in all, hereditary. The heredity may be direct, may skip a generation, or may be through a lateral branch. Sometimes only one child in a large family will have it, at another several children: even in the case of the "Harlequin fetus," two, and even three infants have been born of one mother with this deformity. The disease often keeps to one sex in a family, which may be either of the same or of the opposite sex to the affected parent. Thus, I have met with a family of seven girls and three boys, the boys being the youngest, in which the disease affected four of the girls alternately, beginning at the eldest, and also the eldest boy, the father having the same condition. Kaposi records the instance of an ichthyotic mother who had all five sons ichthyotic, while her three daughters were free. This tendency to attack only one sex in a family is also seen in xeroderma pigmentosa, a totally different disease; but taken as a whole, both sexes are equally liable to ichthyosis, and no class is exempt. There is no other known cause for the congenital affection, but the neuritic and tabetic origin of the local acquired form has been alluded to; while one of my general acquired cases was due to semi-starvation, and another was apparently from chronic diarrhea. Lutz says that in the Sandwich Islands the long use of "ava," a fermented liquor from *piper methysticum*, produces the appearance of well-marked ichthyosis with some atrophy; while the immediate effect of a debauch of it is stupefaction, followed by copious perspiration.

*Pathology and Morbid Anatomy.*—Most authors consider that there is some congenital defect in the development of the cutis, chiefly of the epidermal layer, but according to Unna, the de-

\*G. Finizio, *La Pediatria*, No. 3, 1900. Abs. *La Presse Médicale*, April 27, 1901, p. 199.

† Abs. of Hans and Daniel and Bordier's case, *Brit. Med. Jour. Supp.*, July 20, 1901.

fect is acquired, and he only admits a congenital predisposition, and regards it as "an infectious hyperkeratosis tending to parakeratosis," and compares it to pityriasis rubra pilaris, and psoriasis; in short, that it is a low form of inflammation, shown by the constancy of an increase of cells, with a tendency to moist catarrh, which he would not admit to be eczema, but regards as a simple increase of the always present, but latent inflammation. At present this view is only held by his own pupils.

Histologically Unna finds the horny layer thickened (the nuclei being absent), at the expense of the prickle layer, which is diminished especially over the papillæ; the cells themselves are smaller. The papillæ are flattened from above, the epithelial ridges from below, like dove-tailing, due to increased resistance of horny plate above and diminished resistance of interpapillary layer below. The granular layer is absent completely, so that the prickle cells pass directly into horny cells, and as the prickle cells are not removed, *pari passu* in extreme cases they may be reduced to one or two layers. The hyperkeratosis extends into the follicular orifices, but does not form papules. The sweat pores are unaffected, as a rule, but the lumen of the sweat coils is dilated, and the loops resemble the duct, except that the latter has a double row of epithelium. The clinical difference seen in extreme forms, such as "sauroderma," he ascribes to prickle cell activity (parakeratosis), as well as hyperkeratosis, and these, he says, are the only forms which actively inflame and appear eczematous. This is not correct from a clinical point of view, as it is notorious that even the mildest forms of ichthyosis are extremely prone to eczematous inflammation on very slight provocation, and throws doubt on the correctness of his interpretation of the histological data, the more so as the almost imperceptible gradations, from the mildest to the most severe forms, render it improbable that there should be any fundamental differences in the pathology.

*Diagnosis.*—The diagnosis seldom presents difficulties, the disease dating back from a few months after birth; the dry, rough, dirty-looking, deeply-furrowed skin of xerodermia; the scales, plates, and the general distribution of I. simplex, and the warty growths and streak or nerve distribution of I. hystrix, are so characteristic as to leave no room for error, and the date of its onset will also distinguish it from those secondary local and general conditions which resemble the congenital cases. When, however, extensive eczema complicates xerodermia, there is a great resemblance to *prurigo*, the more so as it also commences in the first years of life; but the diagnosis between these diseases has been given with *prurigo*. A very mild degree

of lichen acuminatus is very like xeroderma with keratosis pilaris. Its recent development and perhaps a previous attack will distinguish it from congenital disease.

*Prognosis.*—The prognosis is decidedly bad for its curability, but temporary amelioration can always be afforded in ichthyosis simplex; and if the patient will take the daily trouble, the skin can be kept supple and free from discomfort. In very mild cases steady perseverance for years, with judicious treatment, has effected a cure, and Hebra mentions a case which got well after variola; a congenital case of Elliot got spontaneously well in some parts. Ichthyosis hystrix is very hopeless as a rule, but I have obtained a permanent removal of the growths where the development has not been very great.

*Treatment Internally.*—Until lately internal treatment in all forms was considered to be absolutely useless, but great improvement has been found to be produced by the internal administration of thyroid extract, beginning with a small dose, say of two grains for a child of five, and gradually increasing to ten grains a day. Although, unfortunately, the improvement only lasts a short time after the thyroid is omitted, it is of some practical value in aiding the cure of secondary eczematous complications. Dr. Buskett of Leeds found nitro-glycerin, one drop of a one per cent. solution three times a day, of marked benefit, but how long it lasted is not on record.

*Locally.*—This must be directed to removing the scales, and making and keeping the skin pliable. The first indication is best fulfilled by alkaline and bran baths, with friction while in the bath, preceded in bad cases by soft-soap inunctions; the removal of the scales must be followed by applications of glycerin, ointments, or lotions, and animal, vegetable, or petroleum fats. Almost any fat will do, such as lanolin, lard, cold cream, neat's-foot, olive, and almond oils; but cod-liver oil is too disagreeable, though very effectual. Kaposi speaks very strongly in favor of a five per cent. naphthol ointment in conjunction with naphthol soap.

Whichever substance is selected should be well rubbed in twice a day at first, but glycerin lotion will be found the most convenient application for the face and hands, in the strength of one to ten. Steady employment of these applications will soon render the skin quite smooth and supple, and the patient

will seem to be quite cured; but this state can only be maintained by inunctions two or three times a week and frequent baths, or else the roughness very soon returns, and only requires time to resume its former severity. Eczema, as a complication, requires treatment appropriate to that condition; callosities can be softened by strong potash lotions (one to two), or continuous applications of soft soap, or removed by salicylic acid plaster. The larger growths of *I. hystrix* should only be interfered with if they are in inconvenient positions, and can then be excised or scraped with a sharp spoon, followed by Paquelin's cautery, but the change is much deeper than it appears, and the destruction must be, therefore, more thorough than would be anticipated. The smaller papillary growths may be removed by the continuous application of tar ointment, and though many of them return, some will be permanently removed. A more pleasant application, and one which has been more successful than tar in my hands, is to paint the growths, after removing the horny caps, with a saturated solution of salicylic acid in alcohol. In this way I have got rid of large areas of minor growths.

**Keratolysis Exfoliativa Congenita.** In 1895 Sangster \* recorded a case of congenital exfoliation of the skin. A man of twenty-four years first showed signs of desquamation on the forehead when three weeks old, it extended and became universal at the end of the third year, and had remained in much the same state since. The skin was constantly exfoliating and could be peeled off in large sheets. There were also tracts of thickened epidermis divided up in quadrillations.

The palms and soles were thickened and sodden from hyperidrosis and did not exfoliate.

There was a great deal of itching, and ecthymatous sores from scratching were present on the legs. The skin was white for some hours, when the loosened skin had been stripped off. The hair and nails were unaffected. He compared it with ichthyosis nacreosus.

Rasch † has had a similar case in many respects, but the skin was red, and he suggests "ichthyosis rubra" as its title.

\* Sangster, *Brit. Jour. Derm.*, vol. vii. (1895), p. 37, with photographic plate.

† Rasch, "Erythrodermia Exfoliativa Universalis Congenita," *Derm*

New-born children shed the skin in branny particles or shreds or lamellæ, occasionally of large size. The process is usually complete in a week, but occasionally lasts a fortnight, and H. Brauns records a case which lasted sixteen days.

The above cases appear to be an analogous condition lasting into adult life of a normal process of the new-born child, and is nearly allied to ichthyosis in its moderate form.

### KERATOSES.

Keratosis has come recently into use as a generic term for diseases in which the chief feature is an overgrowth, or, more correctly, an accumulation of horny cells, for the cells themselves do not proliferate, but there is an increased production from the prickle cell layer—"the stagnation tumor," of Unna. These diseases are of a chronic and benign character as a rule, but in middle and advanced life, and in a few instances even in early life, epithelioma develops upon them. The most frequent precursors of this disaster are corns, senile warts, and arsenical keratosis palmæ et plantæ.

There are numerous diseases of very variable etiology, pathology, and nomenclature which may be brought under the ægis of keratosis, and various classifications have been proposed. I give here that of Brooke \* as an example, using his own nomenclature.

### HYPERKERATOSES.

#### 1. GENERAL.

##### *Diffuse :*

Ichthyosis.

Acrokeratosis.

Pityriasis rubra pilaris (Lichen acuminatus).

##### *Congenital :*

Hyperkeratosis universalis congenitalis.

#### 2. REGIONAL.

##### *Diffuse :*

Kératodermie symétrique des extrémités (Besnier).

Erythema keratodes (Brooke).

##### *Congenital :*

Keratoma palmare et plantare.

*Zeitsch.*, vol. viii. (1901), p. 669. *Abs. Brit. Jour. Derm.*, vol. xiv. (1902), p. 110.

\* For others by Unna, Dubreuilh, etc., see "Discussion on Keratoses at the International Congress of Dermatology in London," 1896, pp. 95 to 178 of *Trans.*; also Tommasoli, "Ueber Keratodermittides." Brochure, by Voss of Hamburg, 1893. Mibelli, "Etiology and Varieties of Keratosis," *Monatsh.*, vol. xxiv. (1897), p. 345, etc.

## 1. GENERAL.

*Multiplex:*

"Lichen pilaris."

Keratosis pilaris (in part) (Brocq).

Keratosis follicularis contagiosa (Brooke).

Porokeratosis (Milbelli).

Comedo { Acne comedo.  
Comedo atrophicans.

Lichen planus.

*Congenital:*

Keratosis congenitalis.

Multiplex.

Ichthyosis hystrix (Lambert type).

## 2 REGIONAL.

*Multiplex:*

Lichen spinulosus (Devergie).

Arsenical keratosis palmæ et plantæ.

Kératodermie en foyers des extrémités (Besnier).

Hyperkeratosis subungualis (H. Hebra).

Verruca.

Callus. Clavus.

Cornu.

Onychogryphosis.

Angiokeratoma.

*Congenital:*

Nævus keratodes linearis.

Keratosis as a complication may be seen in lichen planus verrucosus; lupus verrucosus; some forms of elephantiasis, etc.

No practical advantage is gained by those artificial arrangements which bring together such diverse diseases that they are treated of in various sections of the present work. Here it is proposed only to include those diseases in which the horny accumulation is almost the whole disease, or in which the term keratosis has become generally adopted as part of their nomenclature. We have, therefore, in the first group, warts, corns, callosities, and horns, and in the second, keratosis palmaris et plantaris (congenital or acquired), and including Besnier and Brooke's varieties.

Keratosis pilaris.

Porokeratosis.

Keratosis nigricans (papillomatosus) (Acanthosis nigricans).

Keratosis vegetans (follicularis) (Darier's disease).

Keratosis follicularis contagiosa.

Angiokeratoma.

Subungual keratoma and onychogryphosis are described with nail diseases.

It is not to be assumed that the diseases have necessarily any more intimate relationship than that they have a special anatomical feature in common.

**VERRUCA (a wart).\***

*Synonyms.*—Wart; *Fr.*, Verrue; *Ger.*, Warze.

*Definition.*—A small papillary growth with a horny covering, variable in size, shape, and consistency.

Warts are very variable in aspect and development, and have names accordingly, which are convenient for description.

**Verruca Vulgaris** is the form so common on the hands, especially in young people, where it forms a hemp seed to a split-pea-sized, hard, sessile, slightly conical elevation, with truncated top.

The upper and greater visible portion of it is horny, and the surface is smooth, or studded with minute, moniliform elevations, formed by the close aggregation of hypertrophied, horny-capped papillæ, which, by unequal growth, often break up the whole tumor into irregular craggy lobulations. When first formed they are the normal color of the skin, but the older and rougher they are, the more discolored they become, and are then some shade of yellow, brown, green, or even black. They are single or multiple, isolated or aggregated into close or loose irregular groups, and, while generally seen on the hands, may come anywhere. Warts may attack the nail fold and spread at the side under the nail, and are then somewhat painful on pressure. The growth is then flat instead of nodular.

They occur in great numbers as a symptomatic condition in many cases of keratosis nigricans about the buttocks and thighs as well as on the hands. One of my patients, although under forty, had been subject for several years to ordinary looking warts on the palms and backs of the hand and other parts, which if left alone became epitheliomatous; one excised in the wart stage was seated at a hair follicle. Above a much-thickened rete with enlarged papillæ was a mass of round bodies each with a central dotlike spore and a few layers of horny cells above it.

**Verruca Plantaris, the Plantar Wart**, deserves separate mention, not from any essential difference, but on account of the

\* Author's Atlas, Plate XLVII., Fig. 1, illustrates common and plane warts, Fig. 2 senile or seborrheic warts.

distress and disablement it produces. Its origin is usually traumatic, from some defect in the foot covering, and it is then single in most cases, but I have known a large number to be present in connection with keratosis following hyperidrosis of the feet.

The single one is most common at one of the points of pressure, but it may come anywhere. It may be from a small to a large pea in size, and in the central part its component papillæ are generally discernible, and form soft horny fasciculi with a horny ring round, as has been accurately described by Dubreuilh.\* When the whole is covered by horny epidermis it looks like a callosity, from which it is distinguished by the pain on pressure.

**Verruca Plana** is flat and very slightly elevated, from a pin's head to half an inch in diameter, sometimes single, but often very numerous. There are two kinds, one affecting children chiefly, the other old people.

In young people (**verrucae planæ juveniles**) they are generally quite small, and occur chiefly on the face, especially the forehead, and, to a less degree, on the backs of the hands; they may or may not be slightly pigmented, are both disseminated and in irregular groups, and occasionally have a unilateral distribution. They are often quite square, and bear a very close resemblance to the papules of lichen planus in shape and color, being bluish-red or yellowish-brown; but lichen planus is rare on the face and scalp, where these lesions chiefly appear. Darier's \* histological examination of them showed that the chief changes were hypertrophy of all the layers of the epidermis, with elongation of the papillæ. According to G. Lupis, "The transformation of the cells of the Malpighian layer into horny cells appears to be delayed, while the overgrowth of the epidermis is apparently prior to the elongation of the papillæ." He found no micro-organisms. Sequeira found them to be acanthomata with very little hyperkeratosis. Herxheimer and Marx consider them to be quite different to common warts, chiefly because arsenic cures flat warts but not the common form, they say—an inadequate

\* *Annales de Derm. et de Syph.*, vol. vi., May, 1895, p. 441.

† *Ann. de Derm. et de Syph.*, vol. ix. (1888), p. 619; abs. *Brit. Jour. Derm.*, vol. i. (1888), p. 82.

reason, in my opinion, since they are often associated in the same patient.

**Verruca senilis, Keratosis pigmentosa, Verruca plana seniorum, Verruca seborrhoica**, is the senile clinical variety, but pathologically they are quite different.

They are seen chiefly on the back and arms, and are generally pigmented from brown to black, associated with other signs of senile degeneration of the skin, and may itch severely. Although usually flat, they are sometimes considerably raised above the surface, and obviously papillomatous.

They are said to be very numerous sometimes in cancerous patients, and I have seen a very copious crop on the chest, associated with acute eczema, in an elderly woman. They are part of the symptomatology of xeroderma pigmentosa.

These warts have been histologically investigated by Neumann, Balzer, Handford, Pollitzer,\* etc. The last-named wishes to revert to the old term of **seborrhoic wart**. He has examined eight warts carefully, and dismissed Neumann's and Balzer's descriptions as fanciful. The discoloration he attributes to the concretion of dirt and fatty scales. The stratum corneum is slightly, and the rete considerably, thickened. Epithelioid cells are arranged in groups and lines among the connective-tissue bundles of the corium throughout its whole depth; but the greatest peculiarity, he thinks, is the infiltration of fat in the epithelial cells, from the rete to the coil glands inclusively. He regards the warts as growths from misplaced embryonic cells, which is not very probable, as they are almost invariably present to some extent in old people.

**Keratoma Senile**, an allied if not identical condition, is not infrequent on the face of elderly people, especially about the nose and cheeks. It takes the form of a dirty-brown incrustation which is firmly adherent, but if forcibly removed a slight papillary growth, which bleeds readily, may be discerned.

These papillary growths are liable to degenerate into epithelioma or a rodent ulcer, and, as they are disfiguring also, are best removed. They can be shaved down with a scalpel and then carbolic acid crystals applied. Dubreuilh and his pupil Leton-turier have drawn special attention to this condition.

\* *Brit. Jour. Derm.*, vol. ii. (1890), p. 199, with plate. He quotes the descriptions of the other observers.

**Verruca Digitata.** The hypertrophied papillæ are here separated nearly or quite down to the base, and form fingerlike elevations with a horny cap, the rest being comparatively soft; they are aggregated into small groups, or occasionally large patches, and occur chiefly on the scalp.

**Verruca Filiformis.** These are a small variety of the previous form; they are of small diameter, or even filiform, with pointed end, not more than one-eighth of an inch long, and occur singly, or in small groups on the face, especially the eyelids, and on the neck.

**Verruca Acuminata, or Condyloma Acuminatum.** *Synonyms.*—Moist or venereal wart; *Fr.*, Végétations vénérienne; Condylomes acumines. *Ger.*, Spitzwarzen; Spitzcondyloma.

The most common position for these is about the anus, perineum, in the sulcus, behind or on the glans penis, between the labia, and in the vagina, less frequently in the axillæ, under the mammæ when they overhang, in the umbilicus, round the mouth, or on the toes. When they are on the free surface, where they are dry, they are the color of the normal skin; but in moist situations, where they are subject to heat, maceration, and friction, they are covered with a whitish or yellowish puriform secretion, which soon becomes highly offensive. They are made up of closely aggregated projections, which may be acuminate, tufted, or club-shaped, sessile or pedunculated, protruding much or little; they grow luxuriantly, increasing by peripheral additions, and according to their aggregation, subjection to pressure, luxuriance of growth, and the liveliness of the imagination of the describer, imitate various vegetable productions, and get such names as cauliflower, frambesia, fungous, mulberry or racemose, cockscomb, etc., appended to them. They may grow rapidly or slowly, and though parts of them may atrophy, on the whole they increase, exhibiting less tendency to spontaneous disappearance than is generally exhibited by other forms of wart. The large rapidly growing warts seen on the vulva of pregnant women are an exception, as they generally disappear spontaneously after parturition. A warty condition of the nipples also is sometimes seen in pregnant women.

Verrucose lesions of a more diffuse character are seen from time to time under various conditions, such as lupus verrucosus

and the verruca necrogenica, lichen verrucosus, etc., but there are also many cases which cannot be classified in which there are little or no signs of accompanying inflammation.

*Etiology.*—There is little fact, but much theory, with regard to their etiology. All ages and both sexes are liable to them, some forms being more common in the young than in the old. With regard to the moist form, or verruca acuminata of mucous membranes, the evidence that they are produced by irritating discharges, especially that of gonorrhea, is pretty conclusive; constipation is very often present, but for the rest we know nothing. The popular opinion that they are contagious, or at least auto-inoculable, has not been quite proved, though Kranz thought he had been successful in inoculation with the pointed kind; but Petter's more exhaustive and careful investigations and experiments were negative. Payne's personal experience is the best evidence yet; he scraped away a wart with his thumb-nail, and one developed under the nail, and others followed on the back of the thumb. Moreover, there are some facts in the distribution and development of ordinary warts, as well as their occurrence in several members of a family, which tend to prove the correctness of the popular belief; indeed, Colrat, Cornil, Isquierdo, Kühnemann, etc., have found micro-organisms, both cocci and bacilli, and although it is not yet proved that they are the morbid agents, it is highly probable that they are so.

Jadassohn,\* after discussing the evidence, agrees that warts are transmissible, but could not find the bacteriological proof.

*Anatomy.*—The anatomy has been investigated by Bärensprung, Virchow,† Unna, and others with general agreement. Diverse as they are, they are all formed on the same principle, the shape and size being determined by a central core of connective tissue, containing, and fed by, a vascular loop; over this is an epidermic covering of varying thickness and cornification. The previous existence of papillæ is not essential, a connective tissue base being all that is required. The pointed forms differ from the others only in having more connective tissue, in being highly vascular, and while the rete cells are highly developed, the horny cells are comparatively scanty.

Kühnemann,‡ who has made careful observations, explains the matter

\* "Sind die Verrucæ Vulgares übertragbar?" V. Deutsch. Dermatol. Congress, W. Braumüller, Wien.

† "Die krankhaften Geschwülste," p. 335.

‡ *Brit. Jour. Derm.* vol. i. (1889), p. 328, illustrated with critical review of previous observations.

differently. He says the process is primarily in the epidermis, the changes in the form and size of the papillæ and the enlarged vessels in the papillæ and cutis being secondary. The change commences in the prickle layer, which grows upwards and downwards. Then the other two layers alter; the granular layer is thickened, and this is the most conspicuous change when a wart is first examined; the horny layer is also enormously hypertrophied, but in consequence of defective keratinization the structure is looser and the nuclei are still stainable. This is the most important change, and he would place warts therefore in Auspitz's group of parakeratoses. He found numerous cocci and a few short rods in the prickle layer, but was unable to prove their significance, and other able observers have failed to find them.

Unna\* distinguishes between the common wart and the condyloma acuminatum as follows:

The common wart is an infectious acquired acanthoma on which hyperkeratosis immediately supervenes. The condyloma is a pure acanthoma appearing isolated round the mucous openings and on moist and seborrhœic areas of skin and tending to extend superficially. The digitate warts of the head and the filiform of the eyelids and neck, etc., are here included.

*Treatment.*—Until recently local treatment alone has been employed, but Colrat of Lyons, confirmed by other French physicians, has reported that repeated doses of sulphate of magnesia, 2 or 3 gr. in the case of children, 3ss for adults, three times a day, cause the wart to drop off. I can confirm the truth of this from my own experience in several cases, though, of course, it often fails. Enough sulphate of magnesia to produce two or three evacuations a day should be given, and it may be combined with the acid infusion of roses, or a carminative. In some cases I have thought full doses of nitro-hydrochloric acids have been of service. The tincture of *thuya occidentalis* (*arbor vitæ*), in doses of thirty to sixty minims two or three times, is said to be curative, but I have no experience of it. Paul Müller of Hamburg, and Pullin, are strong advocates of liq. arsenical.  $\mathfrak{mij}$ , three times a day for an adult, and a quarter of a drop for a child. Mansel Simpson is of the same opinion, and says a fortnight's treatment is sufficient. Herxheimer and others affirm that it is efficacious in juvenile *verruca planæ*, but not for common warts. In *verruca planæ* I have found thyroid extract efficacious, and in one case the warts on the forehead which had been there for years disappeared during tuberculin injections for *lupus vulgaris*. Warts have also disappeared after revaccination.

\* "Histopathology," p. 786.

The *local treatment* varies according to the kind and locality. Common warts may be removed by the repeated application of the nitrate of silver stick, or preferably a saturated solution of chromic acid, taking off the black crust every few days; much time may be saved by applying salicylic acid plaster until the horny part is softened and removable, and then using chromic acid. For numerous small flat warts, a saturated solution of salicylic acid in alcohol, repeatedly applied, is sometimes quite successful; more obstinate cases may require the strong acid nitrate of mercury, but these and the other caustics stain the part, which is objectionable on the face, so that salicylic acid is always worth trying, and if this fails, glacial acetic acid may be carefully applied every two or three days, or, as Payne prefers, a weak acid two or three times a day. Caustic potash, if used on common warts, should be limited to the part itself by a ring of wax. Frequent painting with equal parts of liq. carbonis detergens and spirit is a good plan. Kaposi applies to multiple warts of the face sulphur 3v, glycerin 3iss, glacial acetic acid 3iss. When warts are small and numerous I snip them off with scissors, and apply strong carbolic acid to the base with the end of a match. I have also removed them by electrolysis.

The plantar wart, when single, is best removed by electrolysis. A flat surgical curved needle, connected with the negative pole of the battery, is passed through the base of the wart and kept there until the blood-vessels which supply it have been blocked. I have had very satisfactory results with this method. Dubreuilh cures them and packs them with antiseptic gauze. Eddowes cures them and then applies acid nitrate of mercury, which is very painful for some hours. If numerous I should shave them off with a sharp scalpel and apply pure carbolic acid to the base.

Digitiform or filiform warts may be ligatured or snipped off, and nitrate of silver applied to the base. The acuminate form may give more trouble from their extent and vascularity. When small and few in number, keeping them perfectly clean and dry is sometimes enough of itself; but painting them twice a day with liq. plumbi subacetatis, or a solution of perchlorid of iron, is valuable. If these fail chromic acid is the most successful, and nitric acid is also good, but both are painful; glacial acetic acid is generally successful and not very painful.

Small pedunculated growths may be removed like the digitiform; when large, by the galvanic *écraseur*, or they may be snipped off, and styptics, such as the perchlorid or persulphate of iron, applied with firm pressure. The bleeding is apt to be very great, and unless the growth is in a position readily accessible to pressure, the galvano-cautery is the safer plan, cutting through the mass slowly with a dull heat.

The warts of pregnant women should not be operated on until after parturition, but great care is required to keep the parts clean and sweet, and disinfecting lotions or powders are necessary; boric acid, freely sprinkled on, is one of the best applications, but iodoform, resorcin, and salicylic acid are valuable in obstinate cases.

### CLAVUS (A nail).

*Synonyms.*—Corn; *Fr.*, Cor; *Ger.*, Leichdorn, Hühnerauge.

*Definition.*—A hyperplasia of the horny layers, in which there is an ingrowth as well as an outgrowth of horny substance, forming circumscribed epidermal thickenings, chiefly about the toes.

Corns may be hard or soft; the hard corn is a callosity plus a horny peg (the clavus or nail), which, growing downwards, produces atrophy of the papillæ and a cup-shaped depression immediately beneath, while the adjacent papillæ are hypertrophied. Externally there is much less elevation than in the callosity, and it is conical, with sometimes a slight central elevation harder than the rest; in larger corns there may be more than one such horny peg, which, when pressed upon, dig into the cutis, and give rise to exquisite pain or dull aching, according to the acuteness of the pressure, producing sometimes inflammation and suppuration. Corns are chiefly situated on the outer side of the little toe, the upper surface of the other toes, or on the sole. The soft corn is situated between the toes, where it is softened by maceration, and may exude a small quantity of fluid. It is often more painful than the hard ones, and, like them, may suppurate and produce painful ulcerations, and even lead to caries. Corns are

sometimes spontaneously painful, and those who have them badly often find them veritable barometers for approaching wet weather.

*Etiology.*—Corns, like callosities, are almost always the result of pressure or friction; hence both tight or badly fitting boots produce them, and a combination of the two faults in construction is the most fruitful cause. Analogous conditions may arise spontaneously, as in the case Davies-Colley records: the palms and soles of a Hindoo were the seat of disseminated clavus nearly all over the surface; there was no history of the circumstances of their formation, but they could scarcely have been from pressure.

*Pathology.*—According to Rindfleisch, when the pressure or friction falls upon a yielding part, a callosity is produced; when on an unyielding situation, the pressure is more concentrated, and a corn results; in both cases there is congestion induced, which leads to hyperplasia of the horny layers. Small hemorrhages beneath these thickenings are common, and sometimes a bursa is formed.

*Treatment.*—The first care must be to take off the injurious pressure, and to this end the boots should be made to conform to the shape of the foot, instead of trying to make the foot conform to the boot. The corn itself may be removed, either by soaking it in hot water, and then shaving down the callosity with a sharp knife or razor, while the center must be excised, preferably with a scalpel. The re-formation must be prevented by daily soaping, and wearing a perforated amadou or felt plaster for some time. Or, instead of cutting, a salicylic acid plaster may be worn until the thickened cuticle can be peeled off, and then the soaping be used, to prevent renewal. Soft corns should have the hard skin removed in one or other of the above ways; careful daily ablution with soap and water should be used, spirits of camphor painted on at night, and wool worn between the toes in the daytime. All the numerous corn cures, if of any use, act on one or other of these principles.

Duhring recommends the application of a four to eight per cent. caustic potash solution after removing the thickened cuticle; it must be done cautiously, the part round being protected by a ring of plaster. Vigier's formula is also a good one: salicylic acid gr. 15, ext. cannab. ind. gr. 8, alcohol ℥xv, ether

℥xl, collodion flexile ℥lxxv. It is to be painted on with a brush three times a day for a week, when the corn can be easily picked off.

### CORNU CUTANEUM.\*

*Synonyms.*—Cutaneous horn, Cornu humanum; *Fr.*, Corne de la peau; *Ger.*, Hawthorn.

*Definition.*—A horny excrescence of much the same general structure as that of animals, but very variable as to shape.

Horns are very rare in the human subject, but having been regarded as curiosities, they have attracted more attention, and there is more written on them, than their practical importance would otherwise warrant. Lebert is the most comprehensive author on this subject. Horns are usually solitary, but may be multiple: thus Bötge had a case of a man, æt. sixty, with six horns on his face; and another case, a girl, æt. nineteen, in which they followed upon an extensive eruption, and were succeeded by warty growths, which appeared in the second year of life and studded the part of the body below the crest of the ilium, where they were of various sizes, while near the navel and on the right labium majus they were nearly six inches long; it is probable that this was a case of ichthyosis hystrix.

Human horns closely resemble those of animals, ~~but they~~ differ from them in not being of uniform size and shape; they are laminated or fibrillated, solid, and of course hard and dry, some shade of gray, yellow, brown, green, or black; roundish, conical, angular, or flattened; generally twisted or bent, only small ones being straight; they may have either a pointed or truncated end, but they are largest near the base of origin, which may or may not be raised above the surface. They may be of any size, from a quarter of an inch to twelve inches long,

\* *Literature.*—Lebert, "Ueber Keratose oder die durch Bildung von Hornsubstanz erzeugten Krankheiten und ihre Behandlung" (Breslau, 1864), 109 cases. Wilson, *Med. Chir. Trans.*, 1844, vol. xxvii. p. 52, and "Dis. of the Skin," sixth edition, p. 796, analysis of 90 cases and many references. *Mémoires de l'Académie Royale de Médecine*, June, 1830, 71 cases. Pick, *Viertelj. für Derm. u. Syph.*, 1875, p. 315, 10 cases of horns on the penis, with two colored plates; in one case, the horn grew two inches in six months.

from about an eighth of an inch to between four and five inches in diameter; that of Paul Rodriguez,\* growing on the side of the head, being fourteen inches round, and divided at the point into three branches. Their growth is usually slow, but variable, and they may either drop off or be knocked off, exposing a red raw surface, from which another is liable to be produced.

The majority of Lebert's, Wilson's, and the French Academy lists are repetitions of the same cases. An analysis of these shows that nearly half the horns occur on the hairy scalp, forehead, or temples; about one-fifth on the rest of the face, especially on the nose; and the remainder on the body in the following order: the extremities, especially the thighs, the male genitals, chiefly in the sulcus of the glands penis, and the trunk. They are only painful when injured, and then may either be torn off, or the base irritated into inflammation which may lead to their dropping off. According to Lebert, epithelioma † develops in twelve per cent.; in rare instances, horns have developed on epithelioma.‡

Gussmann records the case of a girl in which horns grew all over the scalp, where there was a great deal of rupioid psoriasis.

*Etiology.*—Of this our knowledge is meager. Old age is a predisposing cause, and they are rare before forty, but have been seen at any age, from infancy (three cases) to ninety-seven years, and are slightly more frequent in females than males. The majority start from sebaceous cysts, others from warts, and some from scars. Altered toenails sometimes grow vertically or spirally upwards (Hallopeau).

*Pathology.*—They are essentially overgrown warts. They always begin in the rete mucosum, or the homologue of it lining the glands and follicles; there is always hypertrophy of the papillæ, and upon these the horn is built up, being composed of columns which on section are seen to consist of epidermic horny cells, generally without nuclei, arranged in concentric laminæ, while similar cells, irregularly placed in the interstices.

\* *New York Medical Repository* for 1820.

† For an example of this see a case by A. Pearce Gould in *Path. Trans.*, 1887.

‡ A case of a horn growing on an epithelioma of the cheek, in a man of sixty-three, was shown by Neumann at Vienna, *Annales de Derm. et de Syph.*, vol. iii. (1892), p. 1316.

between the columns, cement them together. Large vessels are formed in the base of the horn. Spietschka \* says that no true horn can be formed if there are no papillæ in that part of the skin, but Sutton has demonstrated a case in which a horn grew from the cicatrix of a burn on the thigh.

*Treatment.*—Soften the horn with water dressings; or if the patient is under an anesthetic, tear or cut it off and cauterize the base, or apply chlorid of zinc paste or caustic potash, or scrape it with a sharp spoon. If the base be not removed, recurrence will take place. Their liability to epitheliomatous development renders it important that the removal should be early and complete.

### CALLOSITAS.

*Deriv.*—*Callus*, hardened skin.

*Synonyms.*—Callosity, tylosis, tyloma, callus, keratoma.

*Definition.*—A hard, thickened, horny patch, produced by hyperplasia of the horny layers.

Callosities may be congenital or acquired. The usual acquired variety is common enough in a greater or less degree, and forms on parts exposed to intermittent pressure or friction. They come chiefly on the palmar and plantar surfaces, are slightly raised, of various sizes, and consist entirely of hyperplasia of the horny layers. This produces the well-known thickenings, with which everyone is so familiar, on the hands of oarsmen, mechanics (especially smiths), and, less frequently, on the fingers of harp and violin players. Purdon drew up a list of localities according to occupation, but they do not need any more special description.

An extreme case, in a negro stoker, is recorded by Morrison.† A very marked case, also in a negro, came under my care. The patient was an omnibus conductor, and was always clinging on to a brass rail. Perhaps negroes are especially liable, probably because hyperidrosis of the palms is nearly always present.

\* Spietschka, "Histologie des cornu cutaneum," *Archiv f. Derm. u. Syph.*, vol. xlii. (1898), p. 39.

† *Amer. Jour. Ven. and Cut. Dis.*, vol. iv. (1886), p. 5, with plate.





KERATOSIS PLANTÆ.

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This is a very frequent antecedent in both palmar and plantar callosities, and is one reason of their frequency on the feet of rheumatoid arthritis patients.

On the feet they occur generally from ill-fitting boots, and are more common in men than women from the nature of their occupations, and more frequent in the middle-aged and elderly than the young. Occasionally they appear to be spontaneous in their development. A curious instance of flat callosities over all the first interphalangeal joints came under my notice in the person of a very aged mulatto woman, but whether congenital or acquired I am unable to say; they were not due to her occupation. Mr. Sutton informs me that callosities, in exactly the same position, are always present in gorillas, as they press upon this part in walking. A similar condition exists over the ischial tuberosities of baboons and other cynomorphous monkeys.

*Treatment.*—When treatment is required, which would not be the case when the affection is due to the occupation, the part should be soaked in hot water and pared down with a scalpel, and then Unna's salicylic plaster continuously applied for a few days, when the whole horny part will be loosened and can be peeled off. To make it a permanent cure, the cause must be avoided.

### KERATOSIS PALMÆ ET PLANTÆ.\*

*Synonyms.*—Tylosis; Ichthyosis palmaris et plantaris; Keratoma; Mal de Meleda.

*Definition.*—Hypertrophy of the horny layer of the palm or sole into a hard plate.

Although it is etiologically and otherwise different, and pathologically allied to the callositas, it is clinically convenient to separate the two conditions.

Keratosis is a rare affection, and usually congenital, but may be acquired. It is symmetrical, and almost always affects both

\* *Literature.*—Author's Atlas. Plate XLIV. Figs. 3, 4, 5, 6 show varieties of tylosis, as it is there called. The newer name is now adopted, as it brings it into line with the other diseases with this designation. Also a paper by the author in *Brit. Jour. Derm.*, vol. iii. (1891), p. 169, with cases and colored plate.

palms and soles, though there may be some variation in degree. It is usually confined to the palmar and plantar surfaces, but the dorsum may be affected to some extent over the joints. In a well-marked case the horny layer of the epidermis is thickened into a yellowish translucent, horny plate, from one-sixteenth to one-eighth of an inch thick, as a rule quite dry and hard, even when, as it usually does, it develops on a hyperidrotic palm or sole, but it may be associated with hyperidrosis, and is then, of course, sodden. The surface may be quite smooth or it may be pitted, and have a worm-eaten appearance. This plate forms a uniform layer over the whole palmar surface, with abrupt borders without any redness beyond. On the soles the inner border of the sole at the arch of the foot escapes; in other words, only that part of the foot which touches the ground in walking is affected. There is great deepening of the main lines of flexion, and there is naturally some hindrance to free movement, with diminished sensitiveness, but no other symptoms in most cases, but in some, especially if it arises from an inflammatory condition, the horny plate splits into irregular masses, and these fissures may go down to the corium and be very painful. This is especially frequent on the feet and at the border of the thickening, and of course interferes with walking.\*

*Etiology.*—In acquired cases hyperidrosis, whether congenital or not, is the most common predisposing cause, and even in arsenical cases probably plays an important part. It may also arise from the long-continued use of arsenic, which also produces hyperidrosis. At the commencement the horny thickening occurs round the sweat orifices, at first like lichen planus, but later projecting in convex papules, so that the surface is nodular; and at this period its arsenical origin may be surmised, but gradually the slight depressions between the little nodules become filled up, and a level surface is produced, and then the tylosis is indistinguishable from the congenital form, unless other circumstances point to arsenic as a cause.

The variety figured by Hebra in his Atlas, and called “*tylosis*

\* Bassaget describes a congenital and hereditary case from Besnier's clinic, in which the palms and soles had a mosaic appearance from superficial fissures. *Annales de Derm. et de Syph.*, vol. v. (1894). Vörner has published a similar case with Histology, p. 1356. *Archiv für Derm.*, etc., vol. lvi. (1901), p. 3.

*palme manus verrucosa*,"\* is probably the nodular stage of arsenical tylosis. When the knuckles and finger joints are affected the thickening is not uniform, but has a pitted aspect, and is not so much developed as on the palmar surface.

Cases associated with pemphigus or dermatitis herpetiformis are probably due to the arsenic so often given in large doses for those affections. I have also seen it in lichen planus. Hutchinson considers senility a predisposing cause.

Most are congenital and show some change soon after birth, but it does not attain its full development for some time. It attacks both sexes, though when it shows family prevalence it may be confined to one sex in that family. It is often traceable through several generations; thus in my case † and that of Horton Dale, ‡ recorded as before mentioned, it went through five generations, in Audry's four, in Unna's § three, and in another of mine at least two. In the first named of mine every autumn, beneath the palms only, blisters formed of about the size of a sixpence, which, if exposed to friction, became very large. They formed in succession, the whole epidermis became loosened and peeled off, leaving the skin thin and tender.

The so-called "**Mal de Meleda**" || is a congenital keratosis chiefly, but not exclusively, of the palms and soles. Meleda is a small island off South Dalmatia, and probably intermarriage in so small a community is the cause of the endemic prevalence of the affection, which begins in the first year of life. There is a yellow horny plate, already described, with black dots corresponding to the sweat orifices. There is also ichthyotic thickening of the skin and deepened creases on the dorsal aspect of the wrists and ankles, and occasionally the elbows and knees have been involved. At the margin, islets of healthy skin are

\* Hebra's *Atlas*, Heft x., Taf. 1, Figs. 1 and 2. Fig. 1 represents the ordinary form.

† *Loc cit.*

‡ *Brit. Med. Jour.*, October 1, 1887, p. 718.

§ Unna, "Ueber das Keratoma Palmæ et Plantæ Hereditarium," *Viertelj. f. Derm. u. Syph.*, vol. x. (1882), p. 231, with photograph.

|| It was first described by Salli in 1826. Lately Hovorka and Ehlers have written on it. *Archiv f. Derm. u. Syph.*, vol. xxxiv. (1897), Heft 2 and 3, Abs. *Brit. Jour. Derm.*, vol. ix. (1897), p. 416. Also vol. x. p. 177, abs. of Neumann's paper on "Keratoma Hereditarium," two cases from Meleda.

sometimes surrounded by the keratosis. The upper layers may be moist and greasy, and then there is an offensive odor. Long-standing cases fissure and break up like the bark of a tree.

Besides these cases of simple hypertrophy, horny thickening of the palms and soles may occur secondarily to inflammations, such as eczema, psoriasis, lichen planus, syphilis, etc. These are generally patchy, but may affect the whole surface and have other differences, which are described under their appropriate headings. There remain a certain number of rather rare cases, in which, along with the thickening of the epidermis, there are some inflammatory phenomena in the form of a ring of erythema, and perhaps swelling and a sensation of heat at the border of the horny portion. This condition may be in patches with a broken-up surface, as in the **keratoderma erythematosa symmetrica** of Besnier; or diffuse, as in the **erythema keratodes** of Brooke. I saw a well-marked case, resembling Besnier's,\* in a gouty man, æt. fifty-six. The condition is unlike eczema palmare in appearance, but may be allied to it. The nosological position of Brooke's † case is doubtful; he is quite satisfied that such cases have nothing to do with ordinary keratosis, but it is convenient to consider them here until we know more of them. The disease begins, says Dubreuilh, by a red, deeply seated nodule, and spreads to form a patch the size of sixpence. As it spreads out it gets a thick, horny coating with an erythematous raised edge round, slightly tender to the touch. It is not absolutely limited to the palms and soles, as it may spread to the dorsum.

*Treatment.*—In congenital cases a cure can, *a priori*, scarcely be expected; but Unna cured five members of the family already alluded to, by perseveringly painting on a ten per cent. solution of salicylic acid in ether, to which a little fat was added; while to the more marked cases a twenty per cent. salicylic acid plaster, applied as already directed and repeated several times whenever the thick skin re-formed, was eventually successful. A similar treatment might be tried for the arsenical and other acquired cases, but I have never seen a cure yet, though Hebra

\* International Atlas of Rare Skin Diseases, Plate V., Fig. 1.

† Erythema Keratodes of Palms and Soles," *Brit. Jour. Derm.*, vol. iii. (1891), p. 335, with colored plate. Dubreuilh has published a similar case, *Brit. Jour. Derm.*, vol. iv. (1892), p. 185.

says they get well spontaneously in about a year. In the inflammatory form Besnier produced amelioration by means of soft-soap applications and baths, but could never cure it, and in the winter it was always worse. My patient improved with ichthyol and salicylic acid applications, but he lived a long way from London, and I lost sight of him before he was quite well. Brooke produced an apparent cure of his cases with ichthyol in three-minim doses internally, and the constant application of an ointment of ichthyol and salicylic acid; but one subsequently relapsed.

In extreme cases it would be worth while shaving off the thickened epidermis, and then applying a Paquelin's cautery, so as to destroy the papillary layer of the skin.

### KERATOSIS PILARIS.

*Synonyms.*—Pityriasis pilaris; Lichen pilaris; Keratosis supra-follicularis (Unna).

*Definition.*—An accumulation of horny cells, which plug the orifice of the hair follicles, and thus form small papules.

This disease is still called lichen pilaris by some authors, but it differs from the lichen class in not being of inflammatory origin.

*Symptoms.*—It consists of pin's-head-sized convex papules of the same color as the normal skin, or of grayish or blackish hue from adherent dirt; each of the papules is formed at the orifice of the hair follicle, and can be completely picked out by the nail, leaving a depression. Sometimes the hair pierces the papule, but more frequently it is coiled within or broken off at the surface, showing only a dark dot. The adjacent skin is normal in color, but often xerodermatous, or even ichthyotic, and this, with the hard papules, produces a very rough, nutmeg-grater sensation.

It occurs chiefly on the extensor aspect of the limbs, especially the arms and thighs, and occasionally on the trunk; but it varies in extent and development, sometimes being scarcely noticeable, at others very conspicuous, from the number and size of the papules.

*Etiology.*—It is most common in those who seldom or never

take baths, but it may occur in others from the time of puberty and onwards, and is sometimes present in a high degree in the ichthyotic.

**Anatomy.**—Unna\* has examined eight cases histologically, and concludes that the affection is only apparently non-inflammatory; that it is a chronic inflammation localized at the follicular orifices, and that the "apparently non-inflammatory form has something of the same relation to the evidently inflammatory as pityriasis capitis has to seborrheic eczema of the scalp."

The primary change is in the horny layer of the follicular entrance. This horny layer runs completely over the follicular entrance, blocks it and the exit of the hair, which is therefore compelled to undergo spiral twisting and "hold the yielding walls of the follicular neck asunder." The resistance to the escape of the hair produces a permanent irritation and hypertrophy of the arrector muscles, and clinically produces a chronic *cutis anserina* and anatomically a bending of the hair follicle. There is always slight and sometimes pronounced perifollicular and interfollicular new formation of connective tissue cells, and in about a third of the cases, permanent dilatation of the vessels.

**Diagnosis.**—It is in many respects like a late stage of *true* lichen pilaris, but it lacks the central horny spine of that affection, is essentially chronic, and there is no inflammation at the commencement. It closely resembles *cutis anserina*, but that is a transitory condition, lasting very little longer than the cold or fear which produces it, and its papule cannot be removed by the nail.

From *lichen scrofulosus*, and the *papular syphilid* with similar characters, it may be distinguished by the positions, the greater prominence and hardness of the papules, and by the constitutional condition present with these two inflammatory conditions.

**Treatment.**—This is much the same as that of xerodermia, viz., alkaline and vapor baths, soft-soap inunctions, followed by warm baths; or the inunction of oily substances of various kinds may be rubbed in, in the same way as is described under Ichthyosis.

\* "Histopathology," p. 287. He compares his observations with mine on lichen pilaris, but mine refer to a totally different disease, although the two affections are often called by the same name of lichen pilaris.

**POROKERATOSIS (Mibelli).\***

*Synonyms.*—Hyperkeratosis eccentrica (Respighi); L'hyperkératose figurée centrifuge atrophiante (Ducrey and Respighi).

Mibelli and Respighi in 1893 described simultaneously a form of disease which they both considered to be a hyperkeratosis, that is, an overgrowth of the horny layer, and Mibelli, finding that the horny change was especially marked at the sweat ducts, called it **Porokeratosis**. No less than four cases have been described by these two observers, two of the cases by both authors; and others have been published by Hutchins, Reissner, Max Joseph; Gilchrist (two in one family), Dubreuilh, Wende, Basch, Ducrey and Respighi together, their case also affecting mucous membranes; Kullack of Berlin (three cases). Galloway showed a case at the Dermatological Society of London in June, 1901, the only one shown there up to that date, but Perry has shown one since then.†

Moderate-sized lesions are circinate, crescentic, or gyrate, but with a sinuous outline. They are from a third of an inch in diameter to an inch or two when single; but compound lesions may extend with some breaks of continuity for the length of a limb segment, as in Mibelli's case in the International Atlas, where it extended on the extensor aspect the whole length of the forearm, and back of the hand nearly to the knuckles, gyrating in a most complicated outline with the central portion clear. It took five years to attain these dimensions. Confining attention to a medium-sized lesion, the border is raised about one-twelfth of an inch above the normal skin, rather abruptly, and

\* *Literature.*—V. Mibelli, International Atlas, No. 9, 1893. For the remaining literature see Wende, *Amer. Jour. Cut. and Ven. Dis.*, vol. xvi. (1898), p. 505, who gives a new case and references to date, except Ducrey's and Respighi's important and highly illustrated article in *Annales de Derm. et de Syph.*, vol. ix. (1898), p. 609, on "L'Hyperkératose figurée centrifuge atrophiante." Useful abstracts are Mibelli's first paper, *Annales de Derm. et de Syph.*, vol. v. (1894), p. 128. Respighi's 1895 paper, *Brit. Jour. Derm.*, vol. vii. (1895), p. 367. Max Joseph's paper, *Brit. Jour. Derm.*, vol. ix. (1897), p. 366. Gilchrist's, *Amer. Jour. Cut. Dis.*, vol. xv. (1897), p. 386.

† Payne showed a case on October 12, 1892, which was probably porokeratosis, but it was not recognized at the time.

slopes off towards the center. The outer portion of the border is studded with miliary prominences, while the upper surface has a fine linear horny layer upon it, and occasionally isolated or grouped miliary oval concretions. There is no sign of inflammation, the color being almost the same as the normal skin, but more frequently of a semi-translucent yellowish tint, due to the horny change in the epidermis. Mibelli speaks of the color being in different lesions, yellowish, dirty yellow, red-brown, deep red with a violet tint, a little browner or very little different from the normal skin.

Respighi lays great stress also on the presence of a horny linear projection, either continuous or divided longitudinally by a narrow furrow, with a horny border. It was well marked in Galloway's case.

The tendency is to extend very slowly at the periphery, clearing up more or less completely in the center, so that the inclosed skin may be normal, atrophically depressed, and without hair or sweat, but it is very exceptional for any lesions to undergo complete involution (one case of Mibelli's). The disease, when once it is established, is very slowly but continuously progressive as a whole for an indefinite number of years, or throughout life. Wende's case began as a small rough scaly plaque on the back of the hand, which soon attained to the size of a pea, and looked like an ordinary wart. After about a year it suddenly developed into a small ring, and then spread peripherally. The irritability decreased with this extension at first, but increased again afterwards. During the last two years there were sudden colorless evanescent swellings round or even away from the lesion, but confined to the affected area. Hutchins' case affected the palm as well as the back of the hand.

*Positions.*—The favorite positions are the back of the hands, including the fingers, and extending up the wrists and rest of the arm, and less frequently the corresponding portions of the lower limb. It also attacks the neck, especially at the sides and nape; the face and scalp, these positions ranking next in frequency to those of the hands and wrists. In exceptional cases it has involved the body, the buccal mucous membranes, and the nails.

Besides these most typical lesions, Ducrey and Respighi describe:

1. Miliary projections, either acuminate or with a punctiform umbilication at the summit, and with a peripheral collarette.
2. Miliary papules, flat or slightly convex, bordered with a very fine horny collarette.
3. Patches, hard over the whole area, of variable size, inclosed by a furrow with a horny raised border, which may even project above the area it incloses. The furrow is sometimes only visible when the patch is bent.
4. On the mucous membranes there are white opaline spots with white projecting border, or uniformly opaline all over.

*Etiology.*—Both sexes are liable to it, but hitherto the majority have been males. It may commence at any age from one to two years and upwards. It shows a family prevalence, and in Gilchrist's series of cases there were eleven persons affected in four generations of the family.

*Pathology.*—This is unknown. Respighi tried in vain to find a microbe, but Wende, in one out of many inoculation experiments, was apparently successful in reproducing the disease in the patient already affected within ten days of inoculation, and the microscope, after excision of the small patch, which was allowed to remain ten weeks, seemed to confirm the truth of the supposition of identity. It is, however, in its most prominent features a keratosis with horny plugs, especially marked at the sweat orifices, though Ducrey and Respighi's observation that the buccal mucous membrane could be implicated, shows that a sweat pore is not essential to the process.

*Anatomy.*—This has been studied by almost all those who have recorded cases. It may be summed up as follows:

The changes are almost entirely epidermal. The horny layer is very much increased in thickness and density, especially in the middle layers; the prickle cell layer is also much thicker, especially in those parts where the hyperkeratosis is marked, and the interpapillary cones are thicker; and a mass of horny cells extends from the base of the interpapillary cone to the surface.

The stratum granulosum was found by Wende to consist of five to eight layers.

The sweat pores are filled with horny cells, and their orifices crowned with a horny incrustation; the sweat coils are more or less atrophied. The superficial layer of blood-vessels is dilated, and there is a multiplication of leukocytes especially near the coil glands, but it is not a conspicuous feature. Respighi confirms Mibelli in that the horny change is most marked at the orifices of the tubular glands, but also adds those of the acinous glands.

In the anatomy of the buccal lesions there is great dermic infiltration, and very considerable development of the papillary body, so that Ducrey and Respighi were led to consider it of dermic origin, and not epidermic, as Mibelli and others consider it to be.

*Diagnosis.*—The most conspicuous features are the presence on the exposed parts, hands, wrists, face, and neck, of ringed or gyrate patches of very variable size, with a slightly atrophied or normal center, and an abruptly projecting border with a sinuous outline. The whole is suggestive of a horny and therefore epidermic development, inflammatory signs being absent.

It is not like any other dermatosis with which I am acquainted.

*Prognosis.*—Slow progressiveness is the rule, but not at a uniform rate. Involution is very rare.

*Treatment.*—If the lesions are small in size and number, they might be excised, but experience has shown that, unless removal is radical, the disease returns on the site of removal.

Salicylic plaster might be applied, and after removal of the horny portion, strong acid nitrate of mercury pressed in with a wooden match to a small area at a time.

G. H. Fox \* has described a form of **axillary porokeratosis**, of which he has seen two cases. The eruption consisted of numerous firm, smooth, rounded papules about a line in diameter of normal color, except when the intense itching led to excoriation. The lesions were chiefly in the axillæ in the woman and entirely there in the man. In the woman there were also some papules on the pubes, but these did not itch much. Eleven months of the most varied treatment failed to relieve the distressing pruritus. Fordyce found microscopically a hyperkeratosis round the sweat and hair orifices with acanthosis down to the corium, mechanical dilatation of the coil glands, and some chronic inflammation of the derma. The general microscopical appearances were like porokeratosis.

\* *Amer. Jour. Cut. Dis.*, vol. xx. (1902), p. 1.

**KERATOSIS NIGRICANS.\***

(Papillaris.)

*Synonyms.*—Acanthosis nigricans; Dystrophie papillaire et pigmentaire (Darier); Dystrophie papillo-pigmentaire (Hallopeau).

*Definition.*—A general symmetrical disease, characterized by hard and soft papillary growths, keratosis, and pigmentation.

This is a very rare disease, of which there are only about thirty cases on record.

It was first described by Unna's pupils, Pollitzer and Janowsky, in 1890, as acanthosis nigricans, and soon after by Darier. Its striking characters partly account for the number of cases since reported. I have chosen the name proposed by Kaposi, as it represents a clinical fact, instead of an incorrect pathological theory, and brings it into line with other keratoses.

The mode of onset varies. In some pigment changes are first noticed on the neck or face.

In one of my own cases, and in others also, a sudden outbreak of common warts appeared on the back of the hands, or they have begun on the thighs. In a third set itching inside the thighs was the first symptom. In a fourth a discomfort in the tongue and mouth marked the onset, and was an early symptom in many cases.

Whatever may be the mode of commencement, the other symptoms usually develop symmetrically, rapidly or even simultaneously, and over a wide area, but showing a marked prefer-

\* *Literature.*—Author's Atlas, Plate LIV., Acanthosis Nigricans; also Internat. Atlas, Plates X and XI., Pollitzer and Janowsky's cases. Darier, "Dystrophie papillaire et pigmentaire," *Annales de Derm.*, vol. iv. (1893), p. 665, and vol. vi. (1895), p. 97. Cases by other reporters, *loc. cit.*, vol. iv. (1893), p. 876; vol. vii. (1896), pp. 1276, 1282; vol. viii. (1897), pp. 210, 232 (abs.), and p. 808 (abs.); vol. x. (1891), (abs.) of two cases. Kuznitzky, *Archiv f. Derm. u. Syph.*, vol. xxxv. (1896), with reference. Spietschka, *ibid.*, vol. xlv. (1898), p. 247. Burmeister, vol. xvii. (1899), p. 343. Morris, *Med. Chir. Trans.*, vol. lxxvii. (1894), colored illustrations of remarkable case. Barski's case is published in *Trans. of Moscow Congress*, 1899, p. 575; at pp. 186, 192, are communications by Heuss, Hallopeau, and Wolff. Hügel from Wolff's clinic, R. Schultzel et Cie., Strasburg, 1898, and references.

ence for certain regions. These are the neck, groins, axillæ and flexures generally, the back of the hands, the palms, the face and the orifices of the mouth, anus, vulva, ears, and even the nostrils and eyelids.

On the trunk the umbilicus, mid-sternum, the flanks, and interscapular regions are the most frequently involved, but there is no part exempt. On the lower limbs there is usually not much, below the lower and inner half of the thighs, except the popliteal space and the dorsum and sole of the foot.

Taking them in the above order, the neck is found to be, not only pigmented from a brownish to bister tint, or even black, but owing to the thickening of the epidermis the natural lines of the skin are much exaggerated and the appearance of lichenification, but without induration, is produced.

Soft papillary growths from a hemp seed to a pea are numerous, and there may be seborrheic warts at and below the nucha, where the thickening is usually most pronounced.

The axillæ show these changes in a higher degree, the color is a grayish or sooty-black in the center, shading off at the margin and down the sides. The thickening now amounts to deep folds traversing the axillæ obliquely, while shallower lines at right angles break up the ridges in squarish masses of papillomatous appearance. In Morris' case, as the disease advanced, a raw-looking red mass produced through the black part. Hard as well as soft warts may be numerous, not so much at the axillæ themselves, but beyond them, where the skin is no longer moist. The groins are very much like the axillæ, but here the disease reaches its highest development, the genitalia being often of a sooty black. The anus is frequently involved with a warty growth and black pigmentation round it; the umbilicus presents a similar aspect, a band of pigmentation often extends from the latter transversely or vertically. In my own and other cases there were numerous warts on the inside of the thighs.

On the back of the hands, wrists, and halfway up the forearms, there are often numerous warts indistinguishable from the common kind, which coalesce towards the wrists into diffuse broken-up horny masses, and the rest of the skin is obviously thickened in the upper layers and traversed by the deepened natural lines, deepest transversely. In my case the flexor surface as well as the extensor aspect of the wrist was affected.

Over the knuckles and finger-joints the skin presents a granular appearance due to minute horny scales. The color is usually only brownish, but in Janowsky's case was blackish and with exaggerated quadrillation, it looked like shark skin.

The palmar surface shows diffuse horny thickening of a transparent yellowish tint, the center of the palm being the least affected. The nails often show damaged nutrition, in the shape of longitudinal striæ, transverse white bands (my case), pitting and brittleness at the edges, and Collan's case had "spoon" nails and the hair fell out. The flexures of the elbows and knees, if affected, show the same obliquely transverse ridging and pigmentation, with or without warts, as on the axillæ, but in quite a minor degree. On the trunk there is often diffuse black pigmentation, over the lower half both back and front, or it may be in the upper half only, or nearly all over. The nipples are not only discolored, but may have a warty development round their base, which makes them painful when pressed upon. On the face there may or may not be dusky or brownish pigmentation either diffuse or round the orbits, but the most striking changes are round the commissures of the lips and inside the mouth.

In Pollitzer's case there were remarkable papillary gray-black growths at the angles of the mouth as large as the tip of the finger. This is exceptional, but slight developments are not uncommon. Inside the lips the mucous membrane is thickened, velvety, and granular; the buccal mucous membrane shows a similar change, but with a whitish surface like lichen planus; the gums are sometimes affected; the palate, both soft and hard frequently, have the thickening and granulation very marked, sometimes warty; at the anterior half the pharynx and epiglottis have been exceptionally involved (Janowsky). The dorsum of the tongue may be profoundly affected; in some of the cases it was covered with long filiform projections two to three millimeters long, which could be bent or separated like hair (Darier and Boeck). In Pollitzer's and Morris' cases the tongue was deep red, fissured, and condylomatous; in Janowsky's the under surface also was affected, but in his case the whole oral mucous membrane was profoundly affected. In my own case the surface of the tongue looked as if coated with a bluish-white paint, and there was only slight thickening of the surface, and

one of the first symptoms was a feeling of roughness on the tongue and palate and loss of taste; in Pollitzer's case the tongue and mouth were painful; in Hallopeau's case the tongue felt swollen.

In a few cases the edges of the nostrils have been affected and warts at the naso-labial fold are common; in Janowsky's case there was hyperplastic rhinitis. In several instances millet-seed or filiform papillomata have been seen on the edges of the eyelids, some pierced by cilia and aggregated towards the commissures (Darier's case), and in Janowsky's case the lashes fell out. In Couillaud's case the palpebral conjunctiva was granular. In Janowsky's and Morris' cases the external auditory meatus was filled with warts. Some cases have had general but moderate enlargement of the lymphatic glands. There is often falling of the hair to a considerable extent, but in Morris' case, a woman of thirty-five, there was a thick growth of white hair on the face, and to a less degree on the chest and abdomen. Of course all these symptoms are not seen in high development in any one case, but a large proportion of them are associated in a moderate degree; thus in my Atlas case the mucous membranes were unaffected, and the hands and feet only very slightly involved.

It is a question whether certain ill-developed cases should be included, such as Pringle's,\* where there was itching and pigmentation for years before papillary growths appeared; or Du Castel's,† where there was itching of the legs and thighs, and then the skin on the abdomen got hard and dry, with a lichen-like condition of the skin with pigmentation. Leslie Roberts' and Joseph's cases can certainly be excluded; but there is a case, reported by myself in 1881, which should, I think, be included—a young and vigorous man of twenty-two, in whom the pigmentation and soft papillary growths were highly developed, but the hands and mucous membranes were free.

Morris showed on February 8, 1899, at the Dermatological Society a case of an elderly woman, in whom, soon after an operation for the removal of some tumor on the shoulder and glands from the axillæ, there appeared extensive highly crusted

\* *Brit. Jour. Derm.*, vol. ix. (1897), p. 76.

† Du Castel, *Annales de Derm. et de Syph.*, vol. vii., 1896.

warty growths, which extended over a large area back and front, on and above the breasts, reaching nearly to the axilla; in the right axilla itself was a moist papillary growth very like an exaggerated keratosis.

The explanation which occurred to me was that the operation produced nerve injury, analogous to that of the abdominal sympathetic which is supposed to account for keratosis nigricans.

Couillaud thinks that papillomatosis may occur without pigmentation in keratosis nigricans. Certainly, as in Rasch's case, papillary growths may occur in the axillæ, etc., without pigmentation, but whether the pathology is essentially the same cannot be determined, and it is better for the present to keep such cases apart from the pigmented ones.

*Etiology.*—The disease is rather more frequent in women. Two-thirds of the cases occur after the age of forty-six, the oldest so far was seventy-two (Hallopeau), the youngest thirteen (Barski), and in this boy it began when only two years old. Isidore Dyer \* had a case of an Italian child, æt. seven, but the date of origin was unknown. In Pringle's case, a woman of twenty, the lips were affected as long as she could remember. In my first case it came out suddenly at the age of fourteen; the age of eighteen also has been recorded. In all these young cases the general health has been undisturbed, except in Pawlof's † case, which began at eighteen, six years after a fall and injury to the epigastrium; but in the older ones the case is far different, and serious visceral disease has been present in a large proportion; of these, cancer of the stomach and liver are the most frequent. In my Atlas case hypertrophic cirrhosis had been diagnosed, and the skin condition had been going on twelve years, and the papillary growths had become much larger.

In Janowsky's case exposure to great heat was the apparent cause, and it got well spontaneously. In one of mine exposure to great cold brought it on, and it had persisted for eight years without other changes. In other cases no clew to its

\* *New Orleans Med. and Surg. Jour.*, October, 1898.

† Pawlof. *Monatsh. f. prakt. Derm.*, vol. xxxiv. (1902), p. 269, with some references and microscopic plate. Abs. in *Brit. Jour. Derm.*, vol. xiv. (1902).

origin could be obtained. In one of my cases the patient died from exhaustion from pyloric obstruction, but no cancer could be detected during life; nevertheless, his skin improved, the warts disappeared, the mucous membranes got nearly well, and the pigmentation less. There was no autopsy.

*Pathology.*—The most plausible view is that there is disturbance of the abdominal sympathetic from pressure of cancerous growths or from other cause, but no anatomical proof has been furnished. As far as the skin changes are concerned, all are now agreed that it does not originate in the prickle cell layer, and therefore it is incorrect to call it acanthosis, since the horny layer and papillary portion of the cutis are most concerned in the process, and Darier, Pawlof, and others consider that the papillary change is the primary one.

*Anatomy.*—The main changes are the increased thickening of the horny layers and stratum granulosum, and to a slight degree of the prickle cell layer; enlargement of the papillæ of the skin from down-growth of the interpapillary processes, while the soft and hard papillary growths of the skin are of the usual structure. In Hallopeau's case increase of the elastic fibers was a marked feature, while Boeck found them diminished, and described the pigmentation as deepest in the three deepest layers of the epidermis, chromatophorous cells being abundant. Further details may be found in Darier's, Boeck's, and other articles. In my own case of 1881 the condition is shown in the accompanying plates.

*Diagnosis.*—The most striking features are the presence of pigmentation in the neck and flexures with papillomatosis, especially in warm and moist positions, a widespread keratosis with warts, discrete and diffuse, and analogous changes affecting all the visible mucous membranes.

The disease which resembles it most closely is keratosis vegetans, or Darier's disease, and the comparison between the two affections is given under the latter.

In Addison's disease the localization and tint of the pigment is somewhat different; there is pigmentation of the mucous membranes and an absence of keratosis and papillomatosis.

*Prognosis.*—Although one case has got well spontaneously, and another after the removal of a cancerous uterus, and one or two have become ameliorated as far as the skin is concerned, a cure can scarcely be hoped for in most cases by direct means.

Where there is visceral disease, the effect on the patient's life and health will depend on that.

*Treatment.*—If a cause be detected, such as cancer of the pylorus or elsewhere, and if it is in such a position that it can

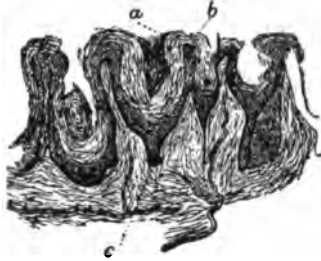


Fig. 28.—Skin of abdomen.  $\times 120$ . *a*, corneous layer dipping down into the rete mucosum; *b*, rete thinned; *c*, pigment in the deep layers of the rete.

be removed, the skin will get well, in all probability, as happened in Spietschka's cases, where, a few months after the removal of the uterus for deciduoma malignum, the skin got quite normal. Otherwise nothing can be done except to remove any

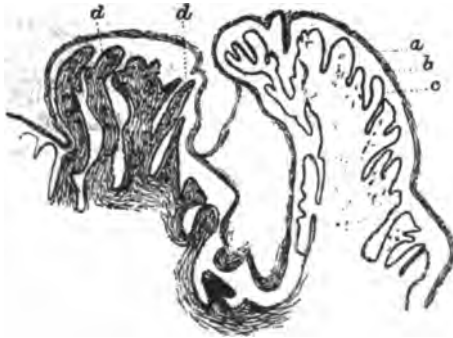


Fig. 29.—Two papillary growths in the skin of the neck.  $\times 60$ . *a*, corneous layer; *b*, rete mucosum; *c*, pigmented layer; *d*, downgrowth of the rete between the papillæ.

warts or papillary growths which, from their position, are a special annoyance.

C. Boeck thought his case improved under the administration of suprarenal capsule extract, but the fact that no disease of the capsules has ever been found does not lead one to expect much from this treatment.

**KERATOSIS VEGETANS.\***

(Follicularis.)

*Synonyms.*—Darier's disease; Psorospermose folliculaire végétante (Darier); Keratosis follicularis (White); General hypertrophy of the sebaceous system (Lutz); Ichthyosis sebacea cornea (E. Wilson).

Lutz and White of Boston gave the first clear description of this disease, but Darier's work on its pathology brought the subject into general notice.

It is very rare, only about twenty-five cases being on record up to 1902, and it is probable that some of these cases were really examples of keratosis nigricans, as there are so many remarkable resemblances between the two affections.

*Symptoms.*—The disease begins most commonly on the face or head, less frequently on the trunk, but ultimately the regions chiefly affected are the scalp, face, feet, the neck, back of the trunk, especially near the spine, the flanks, flexures, anus and vulva, axillary and inguinal regions; in the last part, it reaches its acme of development. The symmetry is striking, and the distribution, as a whole, is the same as keratosis nigricans.

\* *Literature.*—Intern. Atlas, Plates XXIII., XXIV., and XXV. Schweninger and Buzzi's case. Darier's Histology in "Psorospermose folliculaire végétante," *Ann. de Derm. et de Syph.*, vol. x. (1889), p. 597—a histological study, with plates. Thibault's "Thèse de Paris," 1888, with the same title, gives the clinical account of Darier's case. "Keratosis Follicularis," J. C. White, *Amer. Jour. Cut. and Gen.-U'r. Dis.*, vol. vii. (1889), p. 201, and 1890, second case, p. 13. Lustgarten, *loc. cit.*, January, 1891—this was the case recorded by Bulkley in *New York Med. Jour.*, with a review of the subject. "Vier Fälle von Darier'scher Krankheit," C. Boeck, *Archiv f. Derm. u. Syph.*, vol. xxiii. (1891), p. 857, with histology. "Ueber die Darier'sche Dermatoze," Buzzi und Miethke, *Monatsh.*, vol. xii. (1891), pp. 9 and 59. *Brit. Jour. Derm.*, vol. iii., 1891, gives abstract of two Russian cases, "Ichthyosis Sebacea Cornea" in "Diseases of the Skin," 1897, p. 358, by E. Wilson. "Contribution à l'Étude de la Psorospermose Végétante," T. de Amicis, "Bibliotheca Medica," D. ii. Heft 3, 1894, plates. J. T. Bowen, "Keratosis Follicularis," *Amer. Jour. Cut. Dis.*, vol. xiv. (1896), p. 209, gives references to 20 cases. E. Doctor, *Archiv f. Derm. u. Syph.* (1898), p. 323, gives references to date, though his own two cases should be excluded in my opinion. Gilchrist, *The Johns Hopkins Hospital Reports*, vol. i. and reprint.

One of White's cases began as dry brown patches at the sides of the forehead, others as pin's-head smooth firm papules of normal color, which enlarged and became slightly hyperemic; in both stages they resembled keratosis pilaris. When still larger they become hemispherical with polished hard covering, varying in color from dull red to purplish dusky red, brown, brownish-black, and somewhat resemble lichen planus. The most common of the primary lesions is a lentil to pea-sized papule of a dirty red color, with a firmly adherent grayish-brown, black, or gray, horny crust inserted into it. This little sebaceous horn on removal leaves a conical, funnel-shaped depression in the little papule, which is seated at the pilosebaceous follicle. Similar plugs may be embedded in the skin, without a projecting portion above the surface. These plugs, whether above or below the surface, can be squeezed out by the thumbnails like the contents of molluscum contagiosum, which they most nearly resemble, but they are not translucent, and are not inflammatory-looking. The lesions are discrete at first, but increase in numbers until they become confluent in some parts, and the patch is then covered with a brownish, greasy layer, rough to the touch from the irregular projections. The disease progresses slowly as a whole, but there may be acute exacerbations, when a fresh area of considerable size may be invaded with innumerable non-inflammatory papules with very small gray crusts; thus the whole upper limbs were affected in a single attack in Darier's case.

As time goes on the papules increase, not only in numbers, but in development, forming reddish elevations, with a plugged apex or crateriform opening. The horny crusts sometimes reach a considerable size; in one of White's cases one horn projected three-quarters of an inch.

The base of the papule may be denuded of its epidermis, and sebum or sebaceous pus squeezed out. Large masses or tumors may be formed by confluence, especially on the scalp, face, trunk, and axillæ, but reach their highest development in the hypogastric and inguinal regions and the anal cleft, where they undergo papillary development. This vegetating condition, as Darier calls it, constitutes the second period of the disease. In Darier's case there was also a horizontal band of extreme confluence just above the umbilicus. In Lutz's case,

at the level of the breast, was a pedunculated, flask-shaped growth, resting on the chest wall; it was six inches long, and three inches in diameter at the base and one at the summit. Other cases have had similar tumors, but not so large. They are apt to be superficially ulcerated at the follicular orifices, with copious discharge of highly offensive sero-pus. The denuded surface is very painful, from exposure to the air and friction of adjacent surfaces, or of the clothing, preventing sleep and motion, and wearing the patient out. The tumors may also suppurate *en masse*.

The patient also suffers from excessive sweating, and this produces sodden and often decaying epithelial masses which are inexpressibly offensive. Partly also as a result of the hyperidrosis, in some cases there is considerable thickening of the horny layers of the palms and soles, sometimes minutely nodular, as on the palms of Darier's case, where there were small yellowish points on the papillary ridges, from thickening of the horny layer, evidently an inchoate stage of the diffuse condition. Over the knuckles and finger-joints \* the horny layer is thickened with minutely granular whitish appearance. The nails are often affected, longitudinally striated or fissured, indented and brittle, or, according to Boeck, thickened and broadened even where the neighboring skin is healthy.

Seborrhea of the scalp is common. In Thibault's case, where the scalp was affected the surface was covered with abundant dirty yellow, fatty scales, and when these were removed the scalp had a lobulated aspect; the nutrition of the hairs was unaffected, but they were united into brushlike clumps.

In Boeck's cases the scalp was covered with warty masses and fatty crusts, and seborrheic eczema was present, but was readily cured.

Even where there are no papular, nodular, or warty lesions the epidermis is thickened in its upper layers, in many regions of the body; on the face, the back of the hands, of the forearms, and the neck; this produces a deepening of the natural lines of the skin, a more or less distinct ridging, and some discoloration, from a merely dirty to a brownish hue. These

\* Fig. 4, Plate XLIV., of Author's Atlas shows these appearances; the nails also were striated. The case illustrated by the figure was associated with hyperidrosis, probably of arsenical origin.

changes are seen in their greatest degree of development in the neck and the flexures generally, in the axillæ and groins; the surface is marked with deep longitudinal folds of a bister or grayish-black color, exactly resembling *keratosis nigricans*.

Itching is present in the majority of cases, usually moderate, but sometimes severe. The oral mucous membrane has been affected in several cases; thus in Fabry's, æt. sixty-seven, there were numerous elevations on the lips, tongue, and cheeks. Hallopeau also found on the inside of the lips and cheeks numerous isolated and acuminate hypertrophied mucous glands in the shape of nodules, from which mucus could be expressed. The tongue also was villous, and nodules like those on the skin of other parts may also be found at the commissure of the lips and at the external auditory meatus, blocking it in some cases (Schwimmer), again like *keratosis nigricans*.

*Etiology*.—Two-thirds of the cases have been of the male sex, and the majority have begun before the age of sixteen. Several of the cases which are reported as beginning in advanced life are open to the suspicion of the diagnosis not being correct.\*

Three of Boeck's cases were father and two sons, and White's cases were father and daughter; with the former the disease began on the shoulder, where his knapsack rubbed it.

*Pathology*.—The pathogeny of the disease as a whole we are unable to conjecture. But the pathological process which produces the lesions appears to be a keratosis mainly of the mouths of the pilo-sebaceous follicles, as Bowen, Darier, and Lustgarten have shown, and also, to a minor degree, of the sweat follicles; the result of an anomaly in the keratinization process. Darier's theory of psorospermosis is abandoned even by himself, and the bodies he supposed to be psorosperms are acknowledged to be hyaline degenerated epithelial cells, but as their presence appears to be a constant feature of the disease, they are of some diagnostic value. They are round cells surrounded by a refracting double-contoured thick membrane; within it is a granular substance with what looks like a nucleus and nucleoli. They contain keratohyalin, and are found at the base of the horny

\* The cases I should certainly omit are—Kronig's and Doctor's; Jarisch's is very doubtful. The cases in advanced life are Fahry's, Schwimmer's, Hallopeau's, etc., and their diagnosis is also questionable. Hallopeau's was remarkably like a *keratosis nigricans*.

plugs more abundantly than in any other disease of a similar nature.

**Anatomy.**—The anatomy has been studied by nearly all who have reported cases, but the observations of Darier, Bowen, Boeck, and Lustgarten may be especially mentioned; a *résumé* is given in Unna's "Histopathology." The results are those given above.

**Diagnosis.**—The most prominent features are the early onset in the majority of cases, its commencement, as a rule, on the face or scalp, its symmetry, its predilection for the flexures, neck, and mucous orifices, and the peculiar primary lesion like molluscum contagiosum or lichen planus at the first glance, but on closer inspection, instead of being pearly at the base, it is of a dirty red color, and crateriform when emptied of its expressible contents. There are also papules with horny covering compared to keratosis pilaris and sometimes wartlike. The continuous but slow development and the vegetating offensive tumors of the inguino-pubic regions are diagnostic in advanced stages. There is a remarkable resemblance between it and keratosis nigricans, in position, symmetry, pigmentation, and lesions of the mouth and other mucous orifices.

The main differences are the constant presence of Darier's bodies (pseudo-psorosperms) in keratosis vegetans, the onset being nearly always on the face or scalp, while the hands are less frequently affected, especially as regards the palms, and the mouth and tongue are less frequently involved. The primary lesions are different, with crusted and not such a purely horny covering, and although there are minute horny papules, there are not many like common warts. And in only one doubtful case (Fabry's) was there carcinoma of the stomach.

Hyperidrosis is generally present. Minor differences are that it usually begins in early life, males are far more frequently attacked than females, and it shows a distinct family prevalence and apparently even heredity, unless contagion be the real explanation.

In keratosis nigricans the primary lesions are common warts and papillary growths, the pigmentation is much blacker and more extensive, the mouth more constantly and severely affected; the place of onset is either the neck, back of the hands, or inside of thighs; the skin is dry and warty, and the thickening, where not warty, is more extensive in area, being often

correlative with the pigmentation. The scalp is very little if at all affected. Women are more frequently attacked than men; most cases begin after forty, and only four cases so far, up to 1902, have commenced under twenty. There is no family prevalence, and in a very large proportion of adult cases there has been very serious visceral disease.

The difficulty is that, except the character of the primary lesions and the Darier bodies, none of these differences are constant.

But while there are many resemblances of *keratosis vegetans* to *keratosis nigricans*, the relations between the former and *keratosis follicularis contagiosa* of Brooke are still closer.

The main differences are the absence of psorospermlike bodies in Brooke's case, no papillomatous growths and no greasiness, or offensive odor, and the lesions are easily curable but very liable to return. All these discrepancies might be due to Brooke's cases being an early stage of *keratosis vegetans*. Brooke's disease is evidently contagious, while *K. vegetans* is said to show a family prevalence and heredity. This heredity may only be apparent, and contagion from parent to child the real explanation.

The resemblances of the two diseases are—both begin in early life as a rule. In both there is diffuse thickening of the epidermis, so that the natural lines of the skin are deepened; both have spiny growths, which when forcibly removed leave the orifices in the follicles patulous. The head and neck is a favorite place of attack; and finally, the same cases have been claimed for both diseases.

*Prognosis.*—No case has yet been reported as cured or even materially benefited by treatment; it is slowly progressive, with tendency to aggravation rather than amelioration, but without much injury to health as a rule.

*Treatment.*—Nothing hitherto devised has exercised more than a temporary amelioration of the condition except as regards the scalp, where improvement ensues under the same treatment as that for seborrheic eczema, to which the reader is referred. Bowen found an ointment of sulphur, salicylic acid, and daily washing produced marked improvement. Offensive secretions from the axillæ and groins could be controlled by antiseptics of the iodoform class, such as euophen or loletin, or formalin

three per cent. in starch powder, sulphur baths, etc. The effect of thyroid in ichthyosis suggests that it might be useful in this disease, five grains of the extract or one grain of the colloid being given once a day to commence with, and the dose increased as the patient became accustomed to it. I am not aware that it has been tried.

**Keratosis Follicularis Contagiosa (Brooke).**—Brooke\* claims as previous examples of the very rare disease he describes, the acne sebacée cornée (Cazenave), acne cornée (Leloir and Vidal), and ichthyosis sebacea cornea (Wilson), already assigned to keratosis vegetans; ichthyosis follicularis (Lesser), and Morrow's † keratosis follicularis.

While there is much ground for believing that Brooke's follicular keratosis is a mere variant or an early stage of keratosis vegetans, it is provisionally described separately until the connecting links are more certainly identified. Clinically, also, the disease has resemblances to lichen spinulosus, but the latter is not contagious, and does not show family prevalence.

The disease occurs most frequently in children, among whom it spreads by contagion, and sporadically it is seen in adults.

It is symmetrical in distribution, attacking chiefly the neck, especially the nape, the shoulders, and extensor aspect of the limbs; the trunk to a less degree, the face, buttocks, and flexor aspect of the limbs. In most cases it spreads slowly and continuously from above down.

In Brooke's type case it began on the nape, as little black spots, which developed into papules giving a dirty yellow and eventually brown hue to the affected area. The black specks projected, and comedo-plugs and small spinelike growths were produced.

The first change was a thickening of the horny layer, so that the natural rhomboids of the skin were accentuated. In each of these minute black specks appeared, generally in threes, but only one developed a papule, and on this a spine formed on the top, and some of them became slightly inflamed. Some-

\* Brooke, "International Atlas of Skin Diseases," Fascic. vii., Plate XXII.

† Morrow, "Keratosis Follicularis," *Jour. of Cut. Dis.*, vol. iv. (1886), p. 257.

times the spines were long and thin, like bristles, at others short, thick, comedo-like plugs, but they were always firmly rooted, and left a gaping follicle when extracted, the surface being as rough as a nutmeg-grater.

The larger papules were fleshy, and often inflamed like *acne vulgaris* pustules, while others resembled acuminate warts. In parts they were agglomerated into rough, lumpy patches, and the papules and surrounding skin had a dirty yellowish-brown hue. The disease was most highly developed on the outer surface of the posterior fold of the axillæ, where the agglomerated papules looked like a mass of small warts, from the top of which projected curved horny plugs two or three inches in length.

Out of seven children six became affected, evidently from contagion, and in another family three children were attacked. Brooke had two other cases also girls, æt. thirteen and six years. Graham Little\* has shown two cases in one family (a third was affected) to the Dermatological Society. Barbe† has had two boys, æt. seven and a half and eight and a half respectively; and Elliot‡ of New York a Russian boy, æt. fourteen.

*Pathology.*—The lesions have been examined by Vidal and Leloir, Robinson in Morrow's case, and Brooke agrees with their observations.

The process is a hyperkeratosis, affecting chiefly, but not exclusively, the pilo-sebaceous follicles, the sweat pore spirals, and the deep and superficial furrows.

The hyperplasia extends to the other epithelial layers, especially to the stratum granulosum. Some irritant not yet determined apparently starts the process, and the contagious character of the disease points to its being a living organism, but it has not been yet discovered. Neither Brooke, Wickham, nor Unna could find psorospermlike bodies in Brooke's case, and in this respect it is unlike White's, Darier's, and other cases of *keratosis vegetans*, in which they were constantly found. Brooke also considers that clinically it differs from *keratosis vegetans*

\* *Brit. Jour. Derm.*, vol. xiii. (1901), p. 417.

† *Annales de Derm. et de Syph.*, vol. ii. (1901), p. 535; also p. 422, case by Baudoin and du Castel, a male, æt. twenty.

‡ Elliot, *Jour. Cut. and Gen.-Ur. Dis.*, vol. xii. (1894), p. 362

in the absence of papillomatous growth and the freedom from greasiness of the skin and offensive odor, the skin being really dry and harsh. See the diagnosis of *keratosis vegetans* for further details, and the criticism of the differences.

Brooke cured his cases by inunctions of iodid of mercury in mollin (lard saponified with caustic potash, to which some fresh lard and a little glycerin is added). In both Barbe's cases, there being evidence of congenital syphilis, he gave them mercury and iodid of potassium, and the lesions disappeared, though they returned in a week, when the treatment was stopped.

### ANGIOKERATOMA.

*Deriv.*—*ἀγγεῖον*, a vessel; *κέρας*, horn.

*Synonyms.*—Lymphangiectasis (Colcott Fox); Telangiectic warts (Dubreuilh); Lichen télangiectasique; Télangiectasie verruqueuse (Brocq).

*Definition.*—A disease of the extremities characterized by warty-looking growths, which develop on dilated vessels, in persons with a chilblain circulation.

This is a very rare and not very important disease, but with definite clinical characters. The first published case was by Wyndham Cottle.\* A case of my own was alluded to under *Verruca* in the first edition of this work (1888), and cases have since been described in detail by Colcott Fox, Mibelli, Dubreuilh, Pringle,† Fordyce,‡ etc. Mibelli's name is the one which has gained acceptance.

All the patients were, or had been, the subjects of chilblains, and dark spots the size of pin's points to pin's heads, evidently

\**St. George's Hospital Reports*, vol. ix. for 1877-78, 758, with colored illustrations.

† Pringle has given a very complete *résumé* of the disease with good colored illustrations and bibliography (except Cottle's case) to date, in *Brit. Jour. Derm.*, vol. iii. (1891), p. 237, August, September, and October numbers. My own case was given in the November number.

‡ Fordyce, *Amer. Jour. Cut. Dis.*, vol. xiv. (1896). Colored illustration of scrotum affected, and references. Cases are now getting too numerous for separate mention. Joseph reported 6 cases from Berlin, Audry 34, and Escaud 25 cases from Toulouse; Tommasoli 21.

vascular, developed as an attack of chilblains was subsiding. These venous dilatations persisted for an indefinite time, and new ones formed winter after winter, with and without fresh chilblains. They were discrete at first, but most of them were irregularly grouped, and ultimately blended into a small patch from one-eighth to one-third of an inch in diameter, which became distinctly elevated above the surface into a small convex mass, and at the same time horny points developed amongst the vascular dilatations, giving the appearance of warts with venous vascularity at and round the base, and telangiectic warts they were supposed to be, by myself and others, until their development was traced, in other cases, from venous points, and the cornification was shown to be a secondary feature. None of these lesions show the slightest tendency to spontaneous involution, but the larger ones persist with very little change, and fresh vascular points form each winter and develop into the warty stage, or go to increase the size of adjacent warty lesions. These lesions occur on the fingers and toes, and on the parts of the hands or feet immediately adjacent, never extending much beyond the knuckles or roots of the toes. In Sangster's case the ears were affected. The palmar or plantar surface may be involved, but only to a comparatively trifling extent as a rule, but in Saint-Philippe's case they were abundant on the palm, nearly all the lesions being on the dorsal surface of the phalanges; and in a well-marked case all the stages of development may be seen at once. There are no subjective symptoms, but the larger ones bleed easily, and they are always worse in cold weather.

*Variations.*—Further experience has shown that the vascular lesions are not limited to the extremities of the circulation, and are not, therefore, always in etiological relationship to chilblains.

Thus Zeissler's case, in addition to typical lesions on the hands and feet, presented nevus-like patches and pedunculated vascular tumors on the forearms, legs, thighs, and ears. In Fordyce's case the scrotum only was affected, chiefly at the back and sides, the lesions being in lines following the folds of the scrotum. In W. Anderson's case,\* a man æt. thirty-nine, the vascular points and growths had been developing from the age of eleven to twenty-two, and had since been unaltered. They

\* *Brit. Jour. of Dermat.*, vol. x. (1898), p. 113.

affected the whole surface, except the face, palms, and soles, in innumerable puncta and papules of a purplish-red color, from a point to a hemp seed in size, most developed on the scrotum and inner side of the left thigh.

In all these cases the verrucose element was nearly or entirely absent. As associated conditions it may be mentioned that Zeissler's and Fordyce's cases had leukodermia, and in Anderson's and Dubreuilh's cases there was congenital deformity of the fingers. All of them were males.

*Etiology.*—In cases limited to the extremities all the patients have been young, and the disease has dated from childhood. Most of them have been of the female sex, and all have been subject to chilblains, the lesions having always started immediately after an attack, and been aggravated each winter. Some cases have been associated with Raynaud's disease. In the trunk cases the facts are too few for generalization, but so far they have been of the male sex and chilblain circulation has not been an etiological factor.

*Pathology.*—As a result of repeated chilblain inflammation, capillary vessels become dilated in the papillæ, followed by chronic inflammatory changes in the papillary layer, and overgrowth of the epidermic layers above them, when the disease is in the extremities, but when in the scrotum and trunk, most if not all of the secondary changes are absent.

*Anatomy.*—This has been investigated by Colcott Fox, Mibelli, Pringle, and others.\* The observations of the last two agree in the main.

There was great thickening of the stratum corneum, stratum lucidum, and rete mucosum, the last chiefly at the margin of the diseased area, and in this layer were large irregular lacunæ, some still with blood in them.

In the upper part of the papillary layer were copious leukocyte infiltration, increase of the fibrous tissue, and general dilatation of the blood-vessels. The subpapillary layer was only slightly affected in Pringle's case, but more so in Mibelli's; the latter's showed less leukocyte infiltration and he thought there were dilated lymph spaces.

W. Anderson found in his trunk case varicose dilatation of the papillary blood-vessels, thinning or absence of the rete layer above them, while the horny layer was unchanged or thinned. Thrombi were present in many of the vessels. Fordyce found some hypertrophic changes in the horny and prickle cell layers as well as the vascular changes.

\* Wisniewski gives good colored plates of microscopic appearances, *Archiv f. Derm. u. Syph.*, vol. xlv.

*Diagnosis.*—The occurrence of warty-looking growths with a purple vascular base, and accompanied by purple dots on the extremities and ears of a person with the chilblain circulation, is absolutely diagnostic. The mode of development of the warty lesions from the aggregated vascular points would distinguish them from true warts. In the trunk case only the venous dilatations might be present.

*Treatment.*—The most effectual treatment appears to be that successfully employed by Pringle, viz., electrolysis of each lesion, into which a needle attached to the negative pole is introduced, with a current of three milliampères, until coagulation of the blood in the vessels is produced. To prevent the formation of fresh lesions in the winter, general invigorative measures should be adopted, and the patients encouraged to take as much active exercise as their circumstances permit.

## SCLERODERMIA.

*Deriv.*—σκληρόζ, hard; and δέρμα, the skin.

*Synonyms.*—Scleroderma; Hide-bound disease; Sclerema or Scleroma adutorum; Scleriosis; Dermato-sclerosis; Chori-onitis; Sclerostenosis; *Fr.*, Sclérème des adultes, Sclérodémie; *Her.*, Hautsclerem.

*Definition.*—A subacute or chronic disease characterized by extreme induration and rigidity of the skin.

The first case known is that of a Dr. Curcio of Naples in 1752.\* A few isolated cases were subsequently recorded by Lorry, Henke, Alibert, etc., but it was not until Thirial's paper in 1842, recording two cases under the name of "Sclérème des adultes," that the attention of the profession was attracted and the disease generally recognized.

There are three classes of cases:

1. Where the skin affection is diffuse and symmetrical.
2. Where it is circumscribed, usually called morphea.
3. Mixed cases, where there is a combination of the two forms.

Although they all have the same anatomical basis, the first

\* Quoted by Willan, p. 208, under the name of ichthyosis cornea. Colcott Fox, "Note on the History of Sclerodermia in England," *Brit. Jour Derm.*, vol. iv. (1892), p. 101, gives references to many of the old cases.

two differ clinically and etiologically in many important points, and are therefore described separately.

### DIFFUSE SYMMETRICAL SCLERODERMIA.\*

This is a very rare disease, but owing to its striking peculiarities, many cases are on record. I have had seven females and five males under my own care, and have examined many more.

This form presents itself under two phases: *infiltration*, or, as it is more commonly but incorrectly called, *hypertrophy*, and *atrophy*, clinically represented by swelling and then shrinking of the skin. The infiltrated form is the early stage, and may be hard from the first or edematous; the shrunken is a sequel of the swollen stage, which has then generally been edematous in the first instance. The disease frequently comes on after exposure to cold or wet, often with pains in the joints, or there may be no symptoms before the stiffness of the skin sets in. This may spread in a few days over a large part, or even the whole of the body surface, or again, the disease may be so insidious and gradually progressive that the patient can scarcely mark its commencement, and it is progressive for many years. There is no elevation of temperature, unless from complications, and there is often very little or no disturbance of the general health. The commonest positions for the stiffness to be first felt are the back of the neck, the chest, shoulders, and arms; at all events, in some part of the upper half of the body with few exceptions.† This stiffness increases in intensity and extent either slowly or rapidly, traversing a great part of the trunk, limited below by a horizontal line, of which the edge is imperceptible to the eye, and to the touch is ill-defined, merging gradually into the healthy skin. Sometimes there is a zone of dilated vessels marking the boundary of the healthy and unhealthy skin. The scalp, face, neck, and upper limbs may all become involved, each joint being fixed as the skin over it becomes rigid. In the hard cases the volume of the part affected

\* "Lectures on Sclerodermia," by the author, *Lancet*, vol. i. (1885), pp. 191, 237, 927, 975.

† Finlay's case began in the feet and legs and spread upwards, *Brit. Jour. Derm.*, vol. i., August, 1889. In a case of Ewart's with a mild form of Raynaud's disease, it was centripetal, beginning in the hands, feet, and face.

is increased, and the infiltration of the skin makes it extremely tense. The muscles \* may be implicated, resembling rigor mortis, and the whole skin is so hard that it suggests the idea of a frozen corpse without the coldness, the temperature not being more than a degree or two below the normal. No pitting can be produced by pressure, and all attempts to pinch it up are futile; but when the finger is drawn across with firm pressure, it makes a white streak with pink borders, and the normal color is only slowly regained.

When the face is affected it is Gorgonized, so to speak, both to the eye and to the touch. The mouth cannot be opened; the lids usually escape, but if involved, they are either half closed, or when contraction takes place, drawn widely open, but immovable in either case. The effect of the disease on the chest walls is to seriously interfere with respiration and flatten and almost obliterate the breasts, and upon the limbs, to fix the joints in a more or less flexed position from the shortening of the distended skin.

In some instances the mucous membrane of one or the other of the cavities is affected, including that of the mouth, tongue, palate, pharynx, esophagus (judging from occasional dysphagia), larynx, and vagina. In short, no part of the body surface is exempt, though the palms and soles are perhaps the most rarely involved, escaping sometimes when the whole of the rest of the body is affected. While the disease displays a decided preference for the upper portion of the body, it is most erratic both in what it includes and in what it passes over, but is always symmetrical in distribution, though not in intensity, and the legs are never affected without the arms, though the contrary is often noticed. The surface of the skin may be very little altered to a casual observer, but closer inspection shows that the natural lines are obliterated. There may be some patchy erythema at first, and later, minute vessels are dilated and form telangiectasic tufts and striæ, contrasting with the rest of the surface, which is paler than normal as a whole, and in parts is quite white from the obstruction of the circulation, of which many of the symptoms are a consequence. Pigmentation is:

\* The muscles may be affected independently of the skin, though usually the skin and other tissues are simultaneously involved. Cases are recorded by Goldschmidt, Westphal, Méry, Thibierge, etc.

often present, striated, mottled, or diffused over a large area, and varying from a pale fawn up to a deep brown or almost black.

Subcutaneous tubercles have been observed in a few cases (Hutchinson, Gaskoin, Tresidder, and myself\*); they appear to me to be of the same nature as "rheumatic nodules," occur especially over bones, and disappear spontaneously; and it is probable that they would be often found if specially looked for. According to Méry and Brissaud there is sclerosis of the viscera and all soft parts in some cases; but, except as regards the muscles and myocardium (Méry), I am not aware of any anatomical proof. The hair falls off in some cases, but not permanently, and the nails may also be involved.

Sensibility is rarely affected, but both increase and decrease have been noted. In a case which came under my notice very severe apparently neuritic pains occurred at intervals, preceding attacks of acute dermatitis, but not limited to the affected skin. There was also great tenderness of the surface. Pruritus is more frequent, and in one of my cases was a very troublesome symptom.

The secretion, both of sweat and sebum, is diminished in proportion to the intensity of the affection, and may be quite absent, so that the skin gets rough and peels, and on the legs may be almost ichthyotic from the dryness of the cuticle; in the atrophic form the palms and soles, however, are generally moist.

*Edematous form.*—In this set of cases edema instead of induration is first observed, not, however, of the usual doughy kind, but a stiff edema, resembling, as Wilson puts it, the pitting produced by pressing the finger into a bladder of lard. After this has lasted a variable period, amounting to some weeks or months, the edema becomes absorbed, the skin begins to shrink, acquires a dried or ivory-white color, and the atrophic stage is reached. This is the course of most of the edematous cases, and I believe of all of them, while it is *very doubtful if the cases which are primarily hard and infiltrated ever become atrophic*, but this requires further observation.

\*Jane E., æt. thirty-nine (U. C. H., females), and Tresidder, *Lancet*, June 1. 1895, p. 1378. In Eichoff's case the nails were brittle, and there was a horny mass between the nail and its bed, *Archiv f. Derm. u. Syph.*, Heft 6, 1890.

The atrophic condition is not so widely spread as the edema which preceded it, and is more frequently confined to the face and the limbs, especially the upper, but the symmetry is retained, and the alteration is much more obvious to the eye. In the face the skin, from pressure-atrophy of the fat and muscles, is stretched over the bones to which it may be directly adherent, the lips are shortened, the gums shrink from the teeth and lead to their falling out, and the nostrils are compressed. As in the other form the lids generally escape, but the hard edge of the lid has been known to produce ulceration of the cornea, or their contractions may keep the eyes permanently open. The stretched skin, the emotionless features, with the pallor relieved only by telangiectasic striæ, give the countenance a ghastly, corpselike aspect.

The same process affecting the limbs—the arm, for example—reduces the limb of an adult to the size of a child's, ankyloses the joints, and distorts the hand, so that the third and fourth fingers are curled up into the hand, the first and second are bent at the first phalangeal joint, while the thumb phalanges are overextended; this is called "*sclerodactylia*." \* The limb looks and feels like an ivory carving; the skin is even more unyielding than in the infiltrated form, but from shrinking, not distention. In consequence of the tension of the skin over the joints, ulcerations easily ensue upon slight injuries, and necrosis of the phalanges † may result, sometimes with great pain. In a case recorded by Leredde and Thomas there were multiple and very painful erosions and ulcerations of the affected skin. When the tendon of the biceps is involved it forms a tight cord across the front of the forearm and flexes the limb at a more or less obtuse angle. On the other hand, in one of my cases ‡ it missed out a piece of skin at the flexure of the elbow and knee, olecranon and patella, on each side, and left

\* *Sclerodactylia* begins in some cases at the finger-tips and extends upward very gradually, and more often is part of general scleroderma. It may develop in association with Raynaud's disease without other symptoms of scleroderma.

† Zambaco and Bérillon relate such a case, and Zambaco not only compares it with mutilating leprosy, but actually regards the case as marking a transition from scleroderma to leprosy. *Annales de Derm.*, etc., vol iv. (1893). p. 753.

‡ Jane E., æt. thirty-nine (U. C. H., females).

comparatively free movement in those joints, while those below them were fixed. Owing to the ivory-white color and to the shrunken parts being below the healthy skin, the end of the diseased surface is easily seen; but the disease may affect the deeper tissues, somewhat beyond the visible border, which is irregular, and may be fringed with a pink or violet zone of small dilated vessels. Pigmentation affects these cases more frequently and intensely than in the infiltrated form.

The course taken by the two forms differs somewhat. The tensely infiltrated cases tend to clear up, sooner or later. Im-



Fig. 30.—From a case of Sclerodactylia which I treated with Dr. Dercum of Philadelphia, to whom I am indebted for the radiogram, which shows that the joints are unaffected while the soft tissues have shrunk.

provement sets in gradually; the infiltration is slowly absorbed; the skin becomes gradually softer, and after some months, or even years, regains its normal elasticity. Whether any of these cases degenerate into the atrophic form is not quite settled.

Progress towards recovery is not, however, uninterrupted. A slight chill (and the patient is very sensitive to cold) may aggravate the disease, and even extend the process, and the patient, from internal causes also, may feel his skin tighter on some days than others. In the contracted form recovery is less frequent; the disease often remains stationary for years, and in

rare cases fresh portions of the body may from time to time be affected, and the patient may sink under it with emaciation and exhaustion. Improvement may eventually set in, if judiciously treated, and the induration may entirely disappear; but nothing can restore the atrophied tissues, and some of the joints having become permanently ankylosed, more or less deformity is left. The ankylosis is, however, never bony, but entirely due to the fibrous contraction. This was well shown in the section of a finger of a patient of mine who died from heart disease, and in whom the disease, in the atrophic form, had been present twelve years; the induration, however, having quite cleared up for some years before death, leaving only the deformities and thinned skin. If the disease last long emaciation sets in, and the whole vital powers appear to be diminished, so that the patient more easily succumbs to other diseases to which he may be exposed.

*Complications.*—Acute rheumatism is the most common complaint which may precede or accompany the sclerodermia, and cardiac valvular disease may be present, either with or without the joint manifestations of rheumatism. Myositis with pain and contractures of the limbs have been repeatedly observed; in Kaposi's case \* nearly all the muscles of the trunk and limbs were invaded, and the sclerodermia spread over the whole body, with great emaciation from the constant pain. Peripheral neuritis may occur. Enlarged thyroid with or without exophthalmic goiter may coexist, as in the cases of Jeanselme, Booth, Leube, and Kahler, but atrophy of the thyroid, often unilateral, with fibroid changes, is more frequent. In Hektoen's case the thyroid weighed only fourteen grams instead of twenty-two. Necrosis of the phalanges has already been mentioned, and Ullmann showed a case with necrosis of the bones on each side of the face. Muscular atrophy † apart from sclerosis is not infrequent, and syringo-myelia ‡ in a few instances, with the

\* Kaposi, *Annales de Derm.*, etc., vol. ii. (1891), p. 381.

† Dreschfeld, *Med. Chron.*, Manchester, January, 1897, p. 263. Two cases, one with progressive muscular atrophy, the other with trophic ulcers. Schultz of Brunswick found extensive lesions of the anterior roots of the spinal cord.

‡ Mendel met with a case of a woman, æt. forty-one, in whom after suffering from Raynaud's disease to the extent of coldness and lividity for two years, symptoms of Morvan's disease appeared, followed by atrophic

respective lesions in the anterior cornua, and gliomatosis have been found.

Of associated skin lesions Raynaud's disease is the most common, and may precede or accompany it; many have had syn-copal attacks affecting the fingers for years before the sclerodermia. Sclerodactylia may follow Raynaud's disease without other symptoms of sclerodermia. Other vaso-motor disturbances, such as transitory swellings, throbbing in the epigastrium, and frequent vomiting, occurred in one of my cases. In another eczema capitis was present in the height of the sclerodermia, but yielded to the usual treatment; acne and urticaria also occur, and especially the factitious form, which is characterized by its slow development and unusually long duration. In a case under Bettmann \* with commencing sclerodermia, on the chest and back, where the sclerodermia had not yet appeared, the factitious urticaria took several minutes to develop, and lasted for five or six days without change. Lupus erythematosus preceding the sclerodermia has been observed by Cavafy, Pringle, and Brissaud, and by Hallopeau developing in a sclerodermic patient.

*Children.*—Although the name *adultorum* has been appended in contradistinction to *sclerema infantum*, with which it has no connection, sclerodermia frequently occurs in children, and bears the same character among them, except that it tends to run a more acute course both in onset and termination, while the atrophic phase is less often developed. In a child of twelve who came under my care through the kindness of my colleague, Dr. Eustace Smith, the whole body surface was involved, except the palms and soles, within a fortnight, and there were endo- and peri-carditis; yet within three weeks some diminution of the induration set in, though it was twelve months before she was quite well. Many run a much slower course than this.

*Etiology.*—Women are much more prone to this disease than sclerodermia, with marked bronzing of the face. *Deutsche. med. Woch.* No. 34. 1891. Abs. *Brit. Jour. Derm.*, vol. iii. (1891), p. 94. Other cases are Herringham's case, Clin. Soc., *Brit. Med. Jour.* November 4, 1899, p. 1290; Tresidder, *Lancet*, June 1, 1895, p. 378; *Clin. Jour.*, May 8, 1893, p. 313; S. Mackenzie, Henton White, *Lancet*, April 25, 1896, p. 1136; Ewart, Harveian Society, *Lancet*, February 15, 1902, p. 450.

\* *Berlin klin. Wochensch.*, April 8, 1901. Abs. *Brit. Med. Jour.*, *Epitome*, April 27, 1901.

men, in the proportion of three to one, and young and middle-aged adults are the most frequent victims; but thirteen months \* and seventy years † are the extremes of age on record.

Among other predisposing causes previous attacks of Raynaud's disease and acute rheumatism and erysipelas play the most important part, probably from such subjects being unduly sensitive to cold; privation and exhausting emotional conditions are also said to be the causes. Chills, especially after having got the clothes drenched, have been the exciting cause of many cases. In one case (Pick) ‡ it followed directly after exposure to the sun on a long march. Most instances from these causes are comparatively acute. Many patients have had previous good health up to the time of the sclerodermia, and no cause could be assigned for it, and the slow, insidious cases generally baffle investigation as to their origin. Bancroft's § observations of the concurrence of filaria sanguinis with sclerodermia are probably only coincidences. Touton records a case, the result of injury from a splinter of wood. In Abraham's case a fall on the back immediately preceded the onset, Brissaud quotes a case after an injury to the skull, and other cases make it probable that injuries may be exciting causes.

Dana thinks all infectious conditions may give rise to sclerodermia, and the fact that cases have occurred in connection with tuberculosis (Besnier and Ehlers), erysipelas (Chauffard and Schaper), diphtheria (Marsh), scarlet fever (Pringle), lends some support to this view.

In a case in Eichhoff's clinic there were ulcers round the nails

\* Isambert, *Gaz. Hebd.*, 1863, p. 840; Faivre, *Annales de Derm.*, vol. ix. (1893), p. 179; and Norman Moore, *St. Bart's Hospital Reports*, vol. ix. p. 70, records a case of two years. Grasset in the *Iconographie de la Salpêtrière*, No. 5, 1896, describes a case of a youth of eighteen in which an atrophic sclerodermia began at two years of age, progressed up to twelve years, and had since remained stationary. The physical development had been quite stopped, while the brain and rest of the nervous system were intact. He was only 4 ft. 6 in. high, weighed fifty-three lbs., and was like a skeleton with the skin stretched tightly over it.

† Dr. Fletcher's case, *Clin. Jour.*, March 31, 1897. Another case of seventy-two was that of a man in whom the disease affected both legs (Dr Sidney Roberts, Sheffield Med. Chir. Soc.). Jane R. (U. C. H.) was sixty-seven years.

‡ *Viertelj. f. Derm u. Syph.*, 1884, Heft i., p. 227.

§ *Lancet*, February 28, 1885, p. 380.

from favus, and from these sclerodermia started and gradually spread over the whole body surface. The favus was cured with pyrogallic acid and the sclerodermia retroceded.

*Pathology.*—Of this we know very little. Most of the symptoms are referable to obstruction, on the one hand, to the arterial blood supply, and, on the other, to the venous and lymph flow.

The symptoms, which differ so much in many cases, mainly depend, in my opinion, upon the varying degree in which the obstruction affects one or other of these vascular systems.

The disease is not one of lymph obstruction alone, or we should get the condition of elephantiasis arabum, as Kaposi points out, but there can be little doubt that it plays an important part; and if the arterial supply were diminished, there would not be the excessive hyperplasia which is seen in elephantiasis. The obstruction is apparently, in great part, due to the cell effusion, which forms a sort of sheath round the vessels, apparently an endo- and peri-arteritis, but what the original defect is which starts this is obscure. The sclerosis is the outcome of the endarteritis. The most plausible and generally received theory is that of a defect in the nervous system, high up necessarily, since the disease affects the face, and not improbably in the vaso-motor center, but how this nerve influence produces these special phenomena cannot be explained satisfactorily.

Brissaud,\* after discussing all the theories put forward, concludes that a primordial disturbance of the great sympathetic originates the disease.

Mott was unable to find any lesions in the central nervous system. Leredde and Thomas regard the dermato-sclerosis and accompanying arteritis as probably due to a toxin. The co-existing changes in the thyroid found in some cases have led to that being supposed to be the *fons et origo mali*, as in myxedema, but against this is the fact that, while atrophy is most common, hypertrophy of the thyroid also occurs.

*Anatomy.*—The skin of diffuse sclerodermia has been examined anatomically by Förster, Neumann, Kaposi, Schwimmer, Babes, Chiari, Fagge,

\* "Pathogenesis of Sclerodermia," *La Presse Médicale*, No. 51 (1897), p. 285. Full Abs. in *Brit. Jour. Derm.*, vol. ix. (1897), p. 367, with many valuable references.

Unna, and others, the skin having been taken from both the living and dead subject, and though differing in some particulars, probably from the disease not having been in the same stage in all, the results agree in the main, and may be stated as follows :

The changes are almost entirely in the corium and subjacent tissues, pigmentation of the rete, as well as the corium sometimes, being the only epidermic change as a rule, though Neumann found downgrowth in one case. The vessels are narrowed by the pressure of layers of cells of varying thickness which surround the vessels like a sheath (Rasmussen, Kaposi, etc.), and in Schwimmer's case, examined by Babes, there was narrowing from concentric hypertrophy of the media and intima. What leads to this accumulation of cells is not known, and it cannot be shown whether they are derived from the lymph channels round the vessels or are emigrant cells from the blood-vessels, but they do not appear to be of inflammatory origin, as all other evidence of inflammation is wanting. Masses of cells are especially abundant round the sweat and sebaceous glands, the hair follicles, and in the panniculus adiposus. These tend by their pressure to produce atrophy of the subcutaneous cellular tissue, but they are never seen in the papillary layer (Neumann).

The blood-vessels also, while well filled with blood and broad at the lower part of the corium, are bloodless near the papillæ, and are also here thin-walled and diminished in number.

These changes in and around the vessels are probably the primary and leading feature, to which the other anatomical lesions are secondary. These latter are increase of the connective and elastic tissues of the corium, the meshes of which are closer together than usual, and hypertrophy of the organic muscular fibers. There is ectasia of the sweat glands, the cell masses are abundant round them, and eventually produce destruction of the acini and of the hair follicles, and atrophy of the fat and subcutaneous cellular tissue from the pressure of the cell proliferation; and nothing else intervening, the condensed overgrowth of the connective tissue of the corium may be directly adherent to the fascia or periosteum. This description of the secondary changes applies to the later stage of the disease.

A. Mott was unable to find any lesions in the central nervous system, in the peripheral nerves, or in the posterior root-ganglia in a case of Galloway's which had suffered from sclerodermia for years.

Unna\* examined a case of three months' standing when the disease was at its height, and states that "the main process is a hypertrophy of the pre-existing collagenous bundles all through the cutis, which leads to simple pressure atrophy of the vessels as well as of the epidermis structures."

*Diagnosis.*—The wooden induration and immobility of the skin and subcutaneous tissues, occurring symmetrically over a wide area, with or without the ivory color supervening, and the surface otherwise so little altered, are conditions peculiar

\* "Histopathology," p. 1110.

to sclerodermia, with the sole exception of sclerema of the new-born, in which there is induration with great coldness of the surface. This, and the age of the patient, would be obvious distinctions, thirteen months being the youngest age of any recorded case of sclerodermia, so that there can really be no difficulty in diagnosis from the affection of the new-born. In slighter degrees of development the difficulty of pinching up the skin being greater than the infiltration would account for is characteristic. For the diagnosis from the rare disease *xerodermia pigmentosa* see that disease, while most of those exceptional cases of so-called *general atrophy of the skin* are really, in my opinion, examples of atrophic sclerodermia (see *Atrophia cutis*). There remains only one disease, even rarer than sclerodermia, which may give rise to some doubt, namely, *diffuse primary or secondary cancer of the skin*—"cancer en cuirasse" of Velpeau. If secondary, it often begins as nodules; this and the previous history would remove all doubt. But in the primary cases it may be difficult; the slow, continuous spreading, the lancinating pains and tenderness, the neighboring inflammatory edema, the ulceration of the lesions, and involvement of the glands, with the more rapid course to marasmus and fatal cachexia, are all points in which it differs from sclerodermia, and would guide to the correct diagnosis.

*Prognosis.*—Speaking generally, the disease, as a rule, tends to get well spontaneously, but it is impossible to predict how long any case may take; rarely less than twelve months is required for complete recovery, though improvement may begin in a few weeks; on the other hand, the hardness may last several years, with exacerbations and remissions. The swollen are much more favorable than the shrunk cases, and, in my opinion, those which are indurated from the first are more favorable than those which are edematous, as they are less likely to become atrophic. As long as there is induration with distention, hopes of complete recovery may be entertained; when atrophy has set in, although, either as a result of treatment or spontaneously, the skin may get soft and mobile again in a few cases, it can only be after some years, and the subjacent tissues have then become so permanently damaged that more or less deformity and crippling remain. More frequently, in atrophic cases, general emaciation sets in, and eventually the patient dies

marasmic, or falls an easy victim to intercurrent disease of the lungs, kidneys, etc.

*Treatment.*—The indications are to guard the patient against cold, and so prevent aggravation, which nearly always ensues after exposure to chilling influences; secondly, to improve the general nutrition; and thirdly, to restore the circulation in the ischemic area.

For the first, the patient should be clothed in flannel, never allowed to go out in cold winds, and draughts be carefully guarded against.

For the improvement of nutrition, which suffers generally as well as locally, cod-liver oil and ferruginous and other tonics, which may be suitable to the individual, are the most important. Care must be bestowed on the digestive organs, both for the sake of improved assimilation, and also because flatulence materially aggravates the discomfort of the patient, when the trunk is affected. Iodid of potassium, arsenic, mercury, and other so-called specifics have been tried extensively and found useless; and mercurial inunction has been distinctly injurious in some cases, and even in cases in which it has been apparently successful, the result was probably due to the friction with an oleaginous substance and not to the mercury.

For the third, shampooing should be systematically and diligently employed to the affected parts, either after Turkish, but not vapor baths, as they are too depressing, or where Turkish baths cannot be obtained, with oily substances, such as neat's foot or olive oil, or simple ointments. Massage thus carried out will often restore mobility, even in very long-standing cases. Galvanism is strongly recommended by some, and may be of service sometimes, probably by improving the circulation.

Thyroid extract has been tried because of the not unusual co-existence of atrophy of the thyroid, but with very meager success,\* but Lancereaux and Paulesco had a case of recovery in four months, the patient having been previously unable to work for two years, with iodothylin, commencing with 50 centigrams and increasing to 2 or 3 grams. Salicin and salicylate of soda appear to have been of great benefit in the earlier stages. Where only a limb requires treatment the Tallerman (superheated dry air) local baths would be useful.

\* See Osler on "Thyroid Extract Treatment of Diffuse Scleroderma," *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. xvi. (1898), p. 127.

## CIRCUMSCRIBED SCLERODERMIA.

*Synonyms.*—Morphea (Gr., *μορφή*, form, or more probably, as Wilson suggests, a blotch); Keloid of Addison.

Morphea is the term in general use for this variety, which is still regarded by many authors as a disease separate from sclerodermia, but most dermatologists have been convinced, by Hilton Fagge's paper in "Guy's Hospital Reports for 1868," of its close clinical relationship to sclerodermia, and my own observations \* have shown that they are anatomically related. Circumscribed is more common than diffuse sclerodermia, but is still a rare affection.

*Symptoms.*—While its general characteristics are the same in all cases, it varies very much in many of its details, and presents itself in two forms, **Hypertrophic** and **Atrophic**, and occurs in *patches* and *bands*, the patches being the more common. In cases in which there are atrophy and pigmentation, only patches are present.†

In a typical case, one or more patches, from half to two inches in diameter, appear gradually without symptoms, and, therefore, unless they are in an exposed position, often without attracting notice until they are fully developed. Each patch is of irregular shape, of a dead white or old ivory-white color, bordered with a narrow violet, lilac, or pink zone, which close inspection shows to be made up of minute dilated vessels. The patches are level, or nearly so, with the surrounding skin, generally unilateral, sometimes distinctly arranged in the course of a nerve area, in the same way as herpes zoster, and may also be in herpetiform groups of small spots. A very extensive case of guttate spots on the limbs was shown by Pringle.‡ They appear anywhere upon the trunk, but especially on the breasts; on the head and face, in the domain of the fifth, especially the supraorbital branch; and on the limbs most frequently of all, the lower being affected more often than the upper. As a rule,

\* *Path. Trans.*, vol. xxxi. (1880), p. 315.

† Author's Atlas, Plate XLVIII., shows both the band and patch and herpetic forms, and Plate XLIX. an early and late stage of the supra-orbital form in the same patient. Hutchinson's *Archives*, especially vols. v. and vi. (1894-5), contain several interesting cases, some illustrated.

‡ *Derm. Soc. of London*, February 4, 1894.



CIRCUMSCRIBED SCLERODERMA OR MORPHEA IN THE COURSE OF THE SUPRA-  
ORBITAL NERVE.

•



there is no difficulty in pinching up the affected skin, as it is not adherent to the subjacent tissues, and feels like parchment or stiff leather, according to its thickness, which may be greater or less than normal, varying even in the same patch. The surface is dry, the cuticle cracks sometimes, but more frequently it is quite smooth from the obliteration of the natural lines and the absence of hairs, unless the patch contracts towards the center, when there will be minute radiating corrugations. When once it is developed the diseased area may remain stationary for a long period, and then slowly fade, the skin gradually resuming its normal appearance; or the patch may grow at the circumference by the formation in its neighborhood of minute, pearly white, slightly depressed atrophic spots, about one-sixteenth of an inch across, which gradually enlarge, thicken, and ultimately coalesce with the major patch. In a case of P. A. Morrow's extension took place partly serpigginously with a pigmented zone preceding, partly by throwing out spurlike processes like a keloid. The duration of the disease varies from a year or two to eight or ten, and may be attended by the development of fresh patches from time to time, and the retrogression of some of the others. As a rule there are no attendant symptoms except slight itching (in rare instances severe) or the absence of sweating in the patch, but the sensibility is very rarely affected, and no special defect of health is demonstrably associated with it.

The *band* form differs in several respects from the patches. Usually single if on a limb, and adherent to the subjacent tissues, it is, as the new connective tissue contracts, sunk into a sulcus below the surface, but if not adherent, may be raised up into a ridge (*vide* Atlas case and *loc. cit.*). When affecting a limb it may extend the whole length of it, or of one of its segments, and often presents the aspect of a cicatrix, especially when it sinks deeply into the soft structure of the breast or is abruptly limited by the middle line on the forehead, or it may resemble a hypertrophic scar when it is raised to a ridge across a joint. In a case of very slight degree between the brows it was only a three-quarter-inch furrow like a deep frown on one side of the median line with slight induration. The supra-orbital cases generally form two parallel bands, one extending from the tip or root of the nose straight up the forehead to

or beyond the hair margin, but always keeping on one side, usually the left, of the median line, while the second band extends from the supra-orbital notch upwards. Other divisions of the fifth may present lesions. In W. Anderson's case \* all three divisions of the right fifth, including the mucous membranes, were involved, and in a case of Hutchinson's only the areas of the two lower divisions of the fifth were implicated and followed by atrophy and arrest of development.

**Morphea Atrophica.** The small, white, slightly depressed spots which are the earliest stages of many patches are distinctly atrophic (*vide* Histology), but there are cases in which large tracts of skin are atrophic and yet they undoubtedly come under morphea, and are not infrequently associated with indurated patches. The following case is a good example, and will serve for a description of this variety:

Lizzie M., æt. nine, was first seen on January 2, 1894. In the left groin there was a band two and a half inches wide from the crest of the ilium in the mediolateral line to the linea alba. It was fairly well defined at the outer extremity, but shaded-off towards the middle line. The center was white and glistening, but with a slightly mottled appearance, while the border was half an inch wide and of a dark fawn-colored hue. The affected area was slightly sunk below the normal skin, and when pinched up was distinctly thinned and dry. Above this, at the rib border, was a smaller oval patch with similar white area and pigmented border, but the atrophic appearance was less obvious. In the right groin was a patch of similar aspect, but the white center was distinctly thickened like parchment. At the epigastrium was a commencing patch, white in the center, with faintly pigmented border. Altogether there were seven patches on the front of the chest, but there were none elsewhere, and all except the right groin patch were atrophic. She had some ordinary psoriasis on the limbs, and subsequently on the morphea patches on the trunk, without any perceptible difference from its usual characters. The recognition of this condition as a variant appertaining to circumscribed sclerodermia is important, as such cases are frequently reported as a separate disease, and called idiopathic atrophy of the skin (*vide* that disease). In another case, with a large number of

\**Brit. Jour. Derm.*, vol. x. (1898), p. 146.

both thickened and thinned patches, the patient was positive that the thinned patches began as thickened white ones.

*Variations.*—Almost every statement applicable to the generality of cases may be contradicted in exceptional instances. Thus pain and tingling, or itching, have sometimes preceded or accompanied the lesion; a patch may be evolved in a few days,\* and involution, when it does set in, is sometimes rapid; † it may cover a large area or be very small; sometimes the patches are bilateral or even symmetrically disposed, and occasionally upon the median line; or again, instead of being confined to one region, they may be scattered over a great part of the body surface, ‡ and are sometimes of large size, going quite round a limb, for instance. They may be very distinctly depressed below the healthy surface, especially in the center, from adhesion to the tissues below, or raised above it, sharply defined at the margin, or merging imperceptibly into the normal skin. In some cases there is deep-seated induration which may simulate scirrhus of the skin, especially if it is the abdominal wall.

The violet zone of dilated vessels is often absent, and the surface, instead of being an ivory white, may be, in parts, pink, lilac, or red from underlying vessels being seen through the thinned skin, or they may be tinted more or less deeply in various shades of yellow, brown, or even purple, green, and black.§

Many of these variations have been distinguished by various names, such as *M. tuberosa*, *lardacea*, *maculosa*, *nigra*, etc., but they are superfluous designations, and are deservedly falling into disuse.

In addition, pearly white, scarlike lines and spots, like true *striæ* and *maculæ atrophicæ*, may be associated with the more characteristic lesions, and telangiectases and pigment patches without induration may also be observed; which after a time either disappear or develop into the more characteristic lesions.

\* Wm. M., aged eleven, East London Children's Hospital.

† Miss K., patch on nape, after remaining two years, got rapidly well after typhoid fever.

‡ A very remarkable case in large bands and curves, in great part symmetrical, is published in Hutchinson's smaller Atlas, Plates CXXXV. and CXXXVI.

§ Gaskoin's case, *Med. Chir. Trans.*, vol. lx. p. 113, is an extreme in stance.

True keloid of Alibert \* has occasionally supervened, but this is probably accidental.

*Ulceration* sometimes occurs. In a case under Tilbury Fox which I saw, all the patches, which were numerous on the trunk, ulcerated over their whole surface. In a girl of twenty with symmetrical morphea of the shins the larger patches ulcerated, but not deeply. Jamieson and Fox of New York also report ulceration of one or more patches; and Whitfield showed a case at the Dermatological Society of London in July, 1901.

In a case of Prince Morrow's † there were bullæ and widespread ulceration. A case of Sherwell's also had bullæ on a patch of morphea; and Hallopeau has had a similar case with many bullæ on and round the sclerodermia. It appears to be the rule that if one patch ulcerates, most of the others also ulcerate. Considering the amount of vascular blocking, the wonder is that ulceration is so rare.

Changes in other tissues are also occasionally observed, thus Streatfeild's case of fifth-nerve morphea was associated with exostoses of the lower jaw and palate of the same side. On the other hand; atrophy of the subjacent tissues and muscles sometimes ensues, especially in band cases, producing deformity in the case of a limb; the morbid skin, as in the diffuse form, may then be directly adherent to the periosteum. Some cases of hemiatrophy of the face are the result of previous morphea in childhood having produced arrest of development.

Whitfield showed a case at the Dermatological Society with true verrucose thickening of the epidermis in some patches and ulceration in others.

\* Longbottom, age one, E. L. H., a large patch, two inches by one and a half developed, unnoticed at first, in right supra-clavicular region; it was excised and recurred; the upper portion was again excised and keloid developed here; this patch grew larger under observation in the way above described. After a time the corresponding position on the left side became of a general pinkish hue, with dilated vessels coursing over it; on this, small white spots, which gradually enlarged to the diameter of one quarter to half an inch, appeared and remained then unchanged. The case was under observation between seven and eight years. In January, 1885, signs of involution were observed in the oldest patch on the right side, but the keloid remained. In Addison's case of Eliz. Nicholls keloid followed a scald. In Hutchinson's case, p. 329 of "Lectures," keloid developed on the scars of some chronic eruption.

† *Amer. Jour. Cut. Gen.-Ur. Dis.*, vol. xiv. (1896), p. 419, very extensive and symmetrical distribution (illustrated).

**Etiology.**—It is more common in females than males, in a larger proportion even than diffuse sclerodermia. It may affect all ages after the second year; the patches are chiefly seen in young adults and the bands in children.

People of neurotic temperament are most frequently the victims, and prolonged anxiety, worry, or other causes of nervous depression appear to be predisposing influences; a case of mine with a large number of patches dated from a period of prolonged worry. Chills are a possible exciting cause, but much less frequently than in the diffuse form.

Local irritation appears to be an exciting influence sometimes, and perhaps, if carefully looked out for, would account for many that are otherwise inexplicable. Thus cases are recorded as occurring at the spots where the garters were applied (Fagge), following the application of a glister (Gillette), the friction of a boot,\* a blow on the knee,† six months after Röntgen ray exposures (Barthélemy), etc.; and it is not improbable that some of the breast cases are due to the irritation from the edge of the stays, etc., and some neck cases to the friction of the clothing; no doubt the predisposition must be present also, but this applies to local causes for many other diseases. When all the above conditions have been taken into account, it will still be true that no adequate cause can be found to account for the majority of cases.

**Anatomy.**—The anatomy of circumscribed sclerodermia has been examined by myself; sections were made both of the early or atrophic stage, and also of the later condition. The results were as follows:

**Epidermis.**—There was no perceptible alteration in the epidermis, though, of course, there would be in the pigmented cases. In some sections there were a few leukocytes in the Malpighian layer.

\* Hutchinson's case, "Lectures," p. 322.

† Simpson's case, *Brit. Med. Jour.*, June 7, 1884. Also in *Dub. Jour. Med. Sci.*, February, 1891, is recorded the case of a boy of eleven, sclerodermia on the left half of the body, the left side of the face, and the left extremities, followed a violent blow over the left hip. There was also atrophy of left side of the face and limbs, and alopecia in affected regions. In Leslie Roberts' case a fall on the abdomen was followed by induration at the site of injury, and in two years spread to the right shoulder and down the arm in isolated patches, following the branches of the median and radial nerves, and produced rigidity and contraction of the thumb and index finger. In a case of my own a blow on the center of the head in front produced a morpheic band, extending downwards on the forehead to the right of the median line.

*Corium.*—The papillæ were less prominent than normal. In many of the vessels of the superficial longitudinal plexus and papillary branches (Fig. 31, *a*) thrombi were found blocking the lumen; in some sections the thrombus extended into the minute branches going up to the papillæ, but

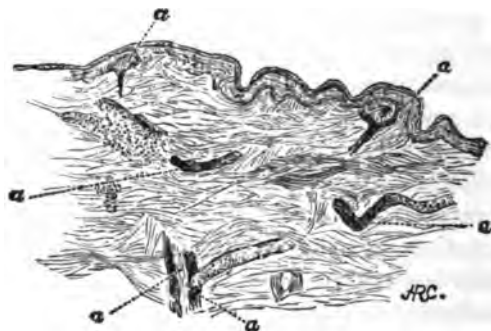


Fig. 31.—Portion of morphea patch  $\times 60$ , showing papillæ obliterated and vessels at *a, a, a* blocked with thrombi.

more frequently the vessels lying horizontally were alone occluded. In one section a small dot, situated at the angle of bifurcation of the vessel, suggested an embolus.

There were always present numerous irregularly branched masses of cells, about the size of leukocytes, staining deeply with carmine, but taking rather longer to do so than the surrounding tissues, and except when

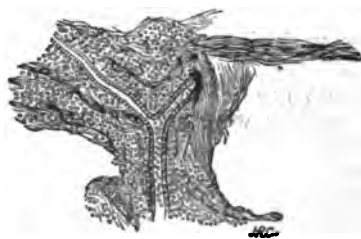


Fig. 32.—Blood-vessel in a patch of morphea surrounded by a dense mass of leukocytes.

grouped round the sebaceous glands, they mostly lay horizontally, corresponding to the superficial longitudinal vessels.

Blood-vessels could frequently be seen going into the mass, and in some cases they were connected with the vessels that had a thrombus beyond the cell groups; sometimes the vessel appeared to expand at these masses as if it were ruptured, and the cells were an effusion from it. In other sections vessels might be seen with cells round them (Fig. 32).

Branching from the cell masses, there was often a reticulum consisting of fine fibrils with well-defined borders and cells at intervals upon them,

like knots in a net. These cell foci were mainly, as has been said, round the superficial longitudinal vessels, the papillary branches being without them (except sometimes at their commencement). The process was rarely seen in the deep plexus, at least in the early stages, but the connecting branches of the two plexuses were more frequently involved, and this cell exudation might be seen occasionally, even in the upper layer of the fat.

Round the sebaceous glands and hair follicles the cell groups and reticulum were very abundant, chiefly, I think, because there are more vessels in the neighborhood of the glands. Cells occurred round the sweat duct, but the sweat glands, lying deeper, usually escaped; and in one of the sections, showing the cells round the duct, the gland below was normal, and just above it was a deep vessel of the corium running into a mass of cells.

In the later stage the essential feature was the increase of the connective and elastic tissues from the fibrillation of the cells seen in the early stage. The papillæ were nearly flattened out. The dense bundles of connective tissue pressed upon and obliterated many vessels, and caused atrophy of the sebaceous glands and of the sweat ducts, very few of which were seen in this stage. In one section, where the disease was of long duration, there was distinct increase in the connective tissue between the acini of the sweat gland, and the lining cells appeared to be pressed together. Although this implication of the sweat glands was exceptional, yet destruction of the ducts necessarily prevented the escape of the secretion, which was proved by the injection of pilocarpin subcutaneously close to the patch, when, while the skin around was quite wet with perspiration, the patch itself was quite dry, except in one very thin part, which lacked the smooth, parchment-like feel of the denser parts, and gave a slight sense of resistance to the finger passed over it. A zone about half an inch wide round the patch was, though moist, decidedly less so than the parts beyond. With anilin violet and iodine, no evidence of lardaceous change in the vascular walls was obtained; the cut ends of the muscular fibers in the wall of the vessels were quite discernible, though perhaps a little less so than in normal vessels.

Duhring has, since these observations, examined a soft, pliable patch from the back, of some months' duration, and found only "a condensation of the connective tissue of the corium with a shrinkage of the papillary layer." Babinski has also made observations on it.

The *Pathology* from my observations appears to be that, owing probably to some defect in innervation, cell exudation occurs round the vessels, narrowing the lumen, obstructing therefore the blood flow, and leading to thrombosis, and sometimes to a real rupture and effusion. Each atrophic spot seen near a growing patch is the base of a cone from which the blood supply is cut off, the violet zone being due to collateral hyperemia round an anemic area. The patch or atrophic spot

thickens by the fibrillation of the effused cells. Where the arterial supply is completely cut off, an atrophic spot only is produced; where it is only diminished, partial atrophy with connective tissue hyperplasia or morphea is developed.

Unna \* has examined the superficial form which he calls card-like scleroderma and finds a hyperkeratosis of the epidermis at the expense of the prickle-cell layer, but no epithelial after-growth. The papillary body is flattened, there is a layer of dilated tubular lymph spaces below the epidermis, which, filled with fluid, reflects the light and causes the milky opacity, while dilated vessels shining through the cloudy marginal zone give the bluish tinge.

Inside the patch which occupies the papillary and subjacent part of the cutis like a plaque, the capillaries and lymph spaces are dilated. The connective tissue cells are increased most abundantly in the neighborhood, but not in the immediate neighborhood, of the blood-vessels, which are unchanged, and there are no cells independent of the blood-vessels, but they are very numerous at the margin of the patch, and the lymph spaces are enlarged here and at other parts of the patch. The thickening of the patch is due to interstitial edema.

In the thicker form, taken from a not quite typical patch behind the ear, he found no epidermic changes, but the cutis changes, consisting of great increase of connective tissue bundles, extended to the adipose layer and included the coil glands. The papillæ were flattened out to a wavy line, and most of the capillaries were obliterated. The collagenous tissue was much increased from top to bottom of the cutis, narrowing the lymph spaces and blood-vessels and obliterating many of the capillaries; but subjacent to the epidermis there was dilatation of lymph spaces, but far less than in the superficial form. The coats of the blood-vessels were unaltered, but the adventitia merged into the surrounding hypertrophic collagenous tissue, and the latter stretched and elongated both the coil ducts and the hair follicles.

Unna thinks it improbable that collagenous tissue arises directly from the cells and their processes. The veins were much dilated at the margin and produced the bluish shimmer.

*Diagnosis.*—A well-marked case of circumscribed scleroder-

\* "Histopathology." p. 1103.

mia can scarcely be mistaken for any other affection, the flat, ivory-white, circumscribed, violet-zoned, unilateral patches are so very distinctive.

*Vitiligo* or *leukodermia* is only a defect in pigmentation, and there is no change in the texture of the skin; moreover, it is dead white, and morphea has nearly always a yellowish tinge.

Morphea with raised patches might be something like some cases of *Alibert's keloid*, but keloid is more vascular, harder, and has often clawlike processes, which will distinguish it, and the latter would never have a nerve distribution.

The deeply indurated cases resembling scirrhus of the skin might be distinguished by the duration and slow development of the sclerodermia, and by the smoothness of the affected skin; pain from myositis might be present and make the diagnosis more difficult, but it would not be of the aching and lancinating character of scirrhus.

Kaposi describes some of the phases of the eruption of non-tuberculated lepra under the term morphea;\* with these, the circumscribed sclerodermia has little in common, except that both are probably due to defective innervation.

The cases of *M. alba*, *lardacea*, and *nigra*, that Kaposi also puts down to the account of a local leprosy, seem merely to be examples of the affection we have been considering.

Some of the cases which have been described as hemiatrophia facialis, or unilateral atrophy of the face, are doubtless examples of fifth-nerve morphea, one such case has come under my observation; but others seem to be an independent condition, affecting all the tissues, and are due to defective innervation, and some are rather instances of arrested development, without the skin changes of morphea. Such a case was originally described by Romberg, and was subsequently seen and described by Virchow, Eulenberg, Charcot, and latterly Payne, who showed the man at the Pathological Society of London in 1881, when I saw him. His case is published, with photographs, in vol. xxxii. of the *Transactions*, p. 306.

Poore, Larde, Frémy, Hammond, Bannister, and Robinson have also published cases.

**Mixed Sclerodermia.** The cases on record are few in number, but have much interest, as they are links connecting the

\* Hebra, vol. iv. p. 156.

circumscribed and diffuse sclerodermia. Some cases commence as diffuse sclerodermia, and the patches develop subsequently. Such was the classical case of Eliz. Nicholls,\* first published by Addison; in this the diffuse sclerodermia was unilateral, subsequently morphea developed on the opposite side of the face, producing the appearance of hemiatrophy, and other patches came on the trunk.

In Gaskoin's case, already alluded to, patches first came, to the number of thirty, which were confidently ascribed to a mental shock during pregnancy. There was some defect in sensibility in the patches, and much itching. A year or two later she was exposed to cold winds, and edema followed. This gradually disappeared, and at the same time the patches, which had been concave, became level, and atrophic sclerodermia developed, spreading from the patches over the whole body surface except the head.

In a third case, under Dyce Duckworth, there were two patches the size of a penny on the left thigh, and some time after she got acute rheumatism, when the patches on the thigh spread and got hard, followed by sclerodermia of both arms and legs.

In a case of my own, a youth of eighteen, there were atrophic patches on the chest and abdomen, while the deltoid and triceps, especially on the left side, were distinctly indurated and stiff, but the skin over them was unaffected.

Such a combination naturally produces an irregular distribution of the diseased areas, but the course, pathology, and treatment are the same as in the ordinary types of sclerodermia.

*Prognosis.*—The majority, and perhaps all cases, ultimately get well, the patches leaving little or no trace of their existence; but the improvement, though occasionally rapid, is often very slow and almost imperceptible, and, as a rule, only occurs after the patch has been stationary for a long time. Band cases are much less favorable than patch cases. Two or three years is the time required for a good many cases to get well, but many take much longer, cases of twenty years' duration being known, and we have no data to guide us in predicting what course any particular case will run. Improvement occurs, according to Hallopeau, by the substitution of an erythema for discolored

\* Plate XLIV., Syd. Soc. Atlas.

induration, and subsequently dark-brown pigmentation, finally leaving only thinning of the cutis. In one of my cases the thickened patches gradually gave way to thinning and pigmentation.

*Treatment.*—This is, unfortunately, very unsatisfactory; general measures of invigoration are desirable, as an improved general circulation is calculated to improve the local circulation. No known local means have been as yet proved to influence the disease for good. Galvanization has been suggested, but it should be applied in the neighborhood, and not over the patch, as anything that irritates the diseased area induces further thickening. The procedure is the same as for hyperidrosis. Brocq has had good results in eight cases with electrolysis.\* Needles attached to the negative pole were introduced into the border of the patch for fifteen or twenty seconds, with a current of five to ten milliamperes; patches at a distance from the one treated also improved. Darier has also had a successful case. Shampooing the limb or other region affected should be also employed in these cases, as in diffuse sclerodermia, and where the disease is over a superficial bone, as on the forehead, careful massage will often prevent the skin adhering to the bone and producing a disfiguring sulcus.

Neisser has obtained success by injecting a ten per cent. solution of thiosinamin subcutaneously near or under the patch. Herxheimer has also used it in three cases with advantage. In view of its efficacy in keloids and hypertrophic scars and the induration of chronic dermatitis, it is probable that it will be advantageous here also. I have not used it long enough to speak from personal experience. It failed in a bad case on the shins. (See Injection Treatment in Appendix for the formula, etc.)

\*"Traitement des Sclérodermies en plaques et en bandes par l'électrolyse," *Annales de Derm.*, etc., vol. ix. (1898), p. 113.

### SCLEREMA NEONATORUM.

*Synonyms.*—Sclerema of the newborn; Sclerodermia neonatorum; Induratio telæ cellulosa; *Fr.*, Algidité progressive; L'endurcissement athrepsique (Parrot); *Ger.*, Das Sclerem der Neugeborenen.

*Definition.*—An induration of the skin, congenital or occurring soon after birth.

Like sclerodermia, the name is indicative of induration, but the pathology and symptoms are very different, and it is advisable to use this term to mark the distinction. Under the term sclerema neonatorum two distinct affections have long been confused, viz., "Sclerema" and "Edema" neonatorum. Sclerema \* was first fully described by Underwood † and Denman at the end of the last century, and soon after a French physician to the Hôpital des Enfants Trouvés observed the affection now known as edema, but mistook it for Underwood's disease, and the error was perpetuated by other observers up to 1877, when Parrot ‡ pointed out that they were distinct affections, a view which is now generally acknowledged to be correct.

It may be primary or secondary, be present at birth, or come on within the first ten days of life, rarely later. §

The morbid process usually commences in the lower limbs, then spreads to the lumbar region, over the rest of the back, then to the chest, and then gradually over the rest of the body

\* The first known case occurred at the Stockholm Hospital in 1718. According to the midwife it was born alive, and died soon after birth. It is recorded by Usenbenzius of Ulm, "Partus Octimestris Vivus Frigidus et Rigidus," in *Ephemerid. acad. naturæ cur. centuria*, ix., obs. 30, p. 62, December, 1722. Schurigii quotes the same case in his "Embryology."

† Underwood, "Diseases of Children" (first ed., 1784, p. 76), calls it "hidebound."

‡ "L'Athrepsie," by J. Parrot, p. 116 (Masson, Paris, 1887).

§ Three cases of a late chronic variety with paralysis are related by Angel Money, *Lancet*, October 27, 1888.

Soltmann, "Ueber Sklerema neonatorum." Reprint from article in Eulenburg's Real-Encyclopädie, 1889. Gives a large number of references.

Somma, "Lo sclerema dei Neonate," Naples, 1892. Ballantyne's "Diseases of the Fetus," vol. ii.

surface, so that it is generally universal by the fourth day; in a few cases it begins on the face and spreads from above down, or again it may stop at some point short of completeness. At first the skin is of a yellowish-white or waxy-looking, and feels like thick leather, but the whiteness gives way to a slightly livid tint, and the skin becoming adherent to the subjacent parts, as well as rigid, it can no longer be pinched up, and pressure with the finger produces no pitting. The skin is tense, loses its natural wrinkles, is cold and hard, and since the limbs are fixed and the child lies with the eyes closed and motionless, except that very slight movements may be discerned in the thorax and face, it resembles a marble figure, or as if it were in a state of rigor mortis. So rigid is the body that it may be raised with one hand, and will still retain the horizontal posture, without flexion. Browning \* of New York records a case of sclerema with opisthotonos without any meningitis. The face is rarely absolutely rigid, but the stiffness of the lips and cheeks prevent sucking and deglutition, and the mouth cannot be opened, which has given rise to the erroneous idea that trismus was present. The pulse falls to sixty a minute; the respirations to fourteen or even ten, and very shallow; and the temperature is several degrees below normal; the cry is reduced to a feeble moan; and what little vitality remains is generally completely extinguished by the seventh day or even earlier. The congenital cases are either still-born or die within forty-eight hours.

In partial cases recovery may occur, but the induration may last for months. In A. Garrod's case † the disease began, the nurse said, three or four days after birth with purple patches of induration on the buttocks. When seen at seven weeks old, the induration was over the back of the trunk and limbs very symmetrically distributed and with islands of healthy skin; none on the anterior surface except small islets on the forehead. The induration took six months to disappear. The rectal temperature varied from 98.6 to 100.4. Similar cases are on record.

*Etiology.*—The primary cases are either congenital or begin in the first few days after birth, without previous illness; the

\* *Jour. Cut. and Gen.-Ur. Dis.*, vol. xviii. (1900), p. 563.

† *Clin. Soc. Trans.*, vol. xxx. (1897), p. 129. A previous case was published in the *Lancet*, May 4, 1895, p. 1103.

secondary cases are the sequel of causes which depress vitality, such as diarrhea or other bowel complaints, or pulmonary affections, such as atelectasis or pneumonia, with extensive collapse. Parrot regards it as one of the phenomena apt to occur with malnutrition from bad feeding and defective hygiene—athrepsy, as he calls it in a word; and that this and overcrowding are predisposing causes. Underwood confirms this when he calls this essentially a hospital disease, at a period when hospital hygiene was much worse than at the present day.

*Pathology.*—The other writers having mixed up edema and sclerema their observations must be disregarded.

Langer, while distinguishing the edematous cases, regards the other cases as fat sclerema, and ascribes the sclerema to solidification of the fat. He states that the fat of the new-born melts at 130° F. and is solid at 89.6° F., while that of adults melts at 107° and solidifies below 32° F. This difference is due to the fatty acids being in excess of those in adults, as 31 per cent. to 10 per cent., and he states, therefore, that any cause which depresses the temperature below the solidifying point of the fat will produce the disease. In such cases there will therefore be no histological changes, but the theory is not entirely satisfactory and scarcely accounts for the congenital cases.

On the other hand, Parrot regards the condition as a consequence of desiccation of the tissues from the drain of the diarrhea, etc., and states that the anatomical changes are very definite and easily recognizable. He says:

“The skin as a whole is notably diminished and thinned, but the horny layer is unchanged, and only looks thicker by contrast with the thinned rete and corium. The outline of the rete cells is scarcely visible, as the cells are compressed into a compact mass. The connective tissue corpuscles of the corium are well defined, and the connective tissue trabeculae appear more numerous and thicker than usual. The islets of fat are smaller, and the contents of the vesicles so diminished as to show the nucleus or even to leave the vesicle empty. The vessels are much contracted, especially those of the papillary layer, in which their lumen is invisible. There is, therefore, a drying up of the skin, thickening of the layers, and some diminution of the fat, but there is no true sclerosis, nor serous infiltration.” Ballantyne’s\* observations confirm Parrot’s, on the whole, except that there is, he thinks, an increase of the connective tissue which subdivides the fat masses into smaller clumps.

\* *Brit. Med. Jour.*, February 22, 1890, p. 403.

Previous observers have either not found any changes or described those of edema neonatorum. The diagnosis, prognosis, and treatment will be considered in connection with edema.

### EDEMA NEONATORUM.

*Synonym.*—Edema of the newborn.

*Definition.*—A subcutaneous edema, with induration, affecting the newborn infant.

This is a very rare disease in England, but is more common abroad, and we owe its delineation chiefly to French observers.

The disease may be present at birth or begins before the third day of life, with drowsiness; then the extremities, especially the legs, are swollen with edema, cold and livid. The edema spreads upwards to the thighs; the hands are next affected; and then the genitals and back. It is marked on the soles and nates, which parts are red and hard. Like all edema the swelling is greatest in the most depending parts, but pitting is only produced by prolonged pressure and the tissue feels hard or at least doughy.

The drowsiness becomes more marked, the pulse weak, the breathing short and shallow, and this feeble spark of life is often put out by some complication, such as pulmonary affections, especially those with collapse, diarrhea, or convulsions, and in a few instances, by parenchymatous nephritis.

*Variations.*—The edema may begin in the back or face and the swelling of the hands may follow immediately upon that of the legs. In very exceptional instances there may be a high temperature instead of a low one, and a jaundiced hue may replace the lividity shortly before death. Associated with it have been noted icterus, erysipelas, pemphigus, furunculosis, and Demme records purpura and disseminated gangrene.

*Etiology.*—It almost invariably occurs in infants which are premature or of feeble vitality from some other cause, and atelectasis is present in many instances. Soltmann suggests that puerperal infection may play a part. Bad feeding of the mother and child, and exposure to cold immediately after birth, are also fruitful causes of the disease.

*Pathology.*—This is not known, but presumably the condition

is directly due to the feeble circulation and defective aëration of the blood, at a period when vital resistance is always small. But this does not adequately explain the whole process. Léon Dumas \* considers it analogous to phlegmasia dolens, and a thrombus in both femoral veins has been discovered in one case. Ballantyne † considers it comparable to adult anasarca, and that it may be of renal, cardiac, or pulmonary origin.

*Anatomically* there is invariably yellow serous effusion into the cellular tissue, and the fat is of remarkable density and of a yellowish-brown color. The liver is very large and the lungs congested, and Ballantyne found nephritis.

*Diagnosis.*—Sclerema and edema possess many factors in etiology and all the signs of depression of the vital organs in common, viz., lowered temperature; steadily increasing debility; imperceptible pulse; absence of the second sound of the heart. They differ in the following points: In sclerema, in the vast majority of cases, the disease is general; the skin is tense, hard, and waxy in color at first, unpittable, and adherent to the subjacent tissue. Edema is less general, the skin, markedly livid from the first, is not so hard, pits with firm pressure, can be pinched up, and the swelling is always greatest in the most dependent parts. In sclerema the joints and jaw are stiff; not so in edema, or only in a moderate degree. The early age of their occurrence will distinguish them from sclerodermia, of which no case under thirteen months has yet occurred. Barlow, ‡ from a case of sclerema under his care, which was partial in its distribution and recovered, considers that the color of the patches in sclerema is “bluish-red or of a deep copper tint, while in sclerodermia either the color does not differ from the healthy skin, or is of a whitish-tallowy character.” In a partial case which I saw with my colleague, Dr. Blacker, § at five weeks old, the infant was in good condition generally, there was no discoloration except where the napkin came, and much of the induration was like plaques in the skin, which pitted with difficulty.

This distinction does not hold good for the majority of cases, for as Underwood pointed out in his original description the

\* Quoted in *Lancet*, November 26, 1887, p. 1081.

† *Loc. cit.*, *Lancet*, 1890.

‡ *Clin. Soc. Trans.*, vol. xvi. (1883), p. 262.

§ *Brit. Jour. Derm.*, vol. x. (1898), p. 87.





ELEPHANTIASIS.

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skin in sclerema is of a waxy or yellowish-white. But for the absence of pitting, Barlow's case appears more like edema. In Parrot's case sclerema followed edema neonatorum.

*Prognosis.*—Sclerema is invariably fatal if it is complete, the infant surviving for only a few days; but in a few cases it is incomplete,\* and then recovery may take place. In edema the prospect is not quite so hopeless, though always serious, and the duration is usually greater than that of sclerema.

*Treatment.*—The indications are the same for both, viz., to raise the body temperature to the normal and to administer nourishment. For the first, the child should be wrapped in cotton-wool and surrounded by hot-water bottles in a warm room; or, where practical, a box apparatus, on the principle of an incubator, would be advantageous. The child, being unable to suck, must be fed either by passing a small stomach pump tube through the nose, injecting the aliment (such as peptonized milk and white wine whey), or by Scott Battams' more simple plan of injecting the food with a glass syringe, to the nozzle of which an india-rubber tube is attached, which is passed into the pharynx. Friction of the limbs with oil, rubbing towards the heart, is useful in the improvement of the circulation.

## ELEPHANTIASIS.†

*Deriv.*—*ἐλέφας*, an elephant.

*Synonyms.*—Elephantiasis arabum; Elephant leg; Barbadoes leg; Bucnemia tropica; Morbus elephas; Pachydermia; Spargosis; Phlegmasia Malabarica; Hernia carnosae; Elephantiasis Indica; *Fr.*, Eléphantiasis; *Ger.*, Elephantiasis.

*Definition.*—A chronic endemic or sporadic disease, consisting of a hyperplasia of the skin and subcutaneous tissues, due to blocking of the lymphatic channels, and resulting in enormous hypertrophy of the affected part.

The term elephantiasis has been used as a generic term for diverse diseases, such as lepra (elephantiasis græcorum), der-

\* Barr's case, *Brit. Med. Jour.*, May 4, 1889.

† *Literature.*—Author's Atlas, Plate I., a leg from Barbadoes, illustrates the smooth variety; Plate LI., Fig. 1, a sporadic case of the warty or papillary variety, reduced half-size to get it into the plate. Vincent

matolysis, the huge symmetrical lipomata which grow about the neck chiefly in chronic alcoholics, as well as the disease under discussion, with the single feature of the enlargement of some part as the only link between them; but it is better to restrict the term to the one affection for which it is fairly appropriate, and it will not then be necessary to use any specific addition, such as *Arabum*.

*Symptoms.*—The disease is endemic or sporadic, differing in the initial and intercurrent symptoms, but practically identical as regards the ultimate result to the affected part, except that in the endemic form usually the limb is very large and smooth, while in the sporadic form the surface of the limb is papillary and rough. The sporadic form alone occurs in England, and is one of the uncommon forms of skin disease. A congenital form also exists.

As seen in tropical or subtropical climates, where it is endemic, the onset is often attended with severe febrile symptoms, sometimes termed "elephantoid fever." There are intense lumbar pain, nausea, or even vomiting, and shivering, followed by high fever, and this again by sweating. If the leg be attacked there is erysipelatous-like redness and rapid swelling, with painful tension, from the great infiltration into the cellular tissue, and when the lymphatics are much involved, there is a clear or milky discharge. If the scrotum is the part affected vomiting is nearly sure to be present, with intense pain in the groin, testes, and along the spermatic cords, which are swollen, with external redness, and the acute formation of hydroceles, while the abdominal rings may be so much stretched by the swollen cords

Richards on "Elephantiasis *Arabum*" in Fox and Farquhar's "Endemic Skin and Other Diseases," App. VIII., p. 126 (Churchill, 1876). Lecture on "Elephantiasis *Arabum*," by Sir Joseph Fayrer (March, 1879); also *Path. Trans.*, 1879, and "Relations of *Filaria sanguinis hominis* to the Endemic Diseases of India" (a good *résumé*, with numerous references), *Lancet*, February 8, 1879. Writings by P. Manson in eighteenth issue of *Chinese Med. Rep.*, and many previous papers on filaria disease, showing life history of the parasite, and relation to *E. Arabum* and other diseases. "Die elephantiasischen Formen," F. Esmarch and D. Kulenkampff (Hamburg, 1885).—a richly illustrated monograph, in which elephantiasis is used in its widest sense for numerous hypertrophic diseases, congenital and otherwise. "Elephantiasis *Arabum*," Hans von Hebra (Wien, 1885). Manson's "Tropical Diseases," second ed. (1900), p. 505, for pathology, but the whole chapter on Filariasis should be read.

as to lead to hernia, after the subsidence of the swelling (Fayrer). Under suitable treatment the febrile symptoms subside, leaving the limb slightly larger than before. In some cases, although the periods of quiescence last for months, the paroxysms are severe; while in others again the paroxysms are of slight intensity, and at long and irregular intervals, and the growth is proportionately slow and less developed. In  $3\frac{1}{2}$  per cent. there is no fever, and in many the enlargement of the axillary and inguinal glands precedes the fever. In rare instances there is continuous increase without constitutional disturbance. In this country an attack, or repeated attacks, of erysipelas may be the starting factor, and there will then be corresponding febrile symptoms in proportion to the extent and intensity of the erysipelas; but in others the development is very slow, and constitutional symptoms are absent. No symptoms corresponding with elephantoid fever form a part of the morbid phenomena in this country, nor are cases of rapid or very extreme development seen here.

When pretty fully developed the limb presents the following aspect, taking the leg, which is the most common position, as the type: the limb below the knee is enlarged to three or four times its normal girth, and although some edema is present, it requires strong pressure to produce pitting, and the greater part of the increased bulk is solid, and generally extremely hard and unyielding.

Owing to the swelling of the tissues on each side of the natural folds these form deep sulci, especially marked at the bend of the joints, and the swollen parts being in contact, the surface is covered with a moist, slimy, and offensive fluid, consisting of decomposing sweat, sebum, and sodden epithelium. Reddish or deep brown pigmentation of the whole limb, deepest at the lower part, is generally present. The surface of the limb is quite smooth, if only the trunk lymphatics are blocked, but if the superficial ones are also involved, the surface will be irregular, with varicose lymphatics, which form wormlike projections or deep-seated vesicular protrusions upon it; or, as it usually presents itself in the sporadic form, in which there is chronic or recurrent inflammation of the surface lymphatics, there will be patches of hypertrophied papillæ, which form soft or warty, elevated plaques, covered with thick horny or sodden epidermis;

these are especially common on the dorsum of the foot, and there is boardlike hardness of the subjacent tissues.

As a rule there is no pain or other sensory disturbance, except during the febrile exacerbations, or from complications, of which the most common is eczema, chiefly seen in the smooth limbs, accompanied by much itching; varicose ulcers also are frequent. In the inflammatory attacks the pain, heat, and tension may be very great; sympathetic gland irritation is generally present, and the dilated lymphatics are tender and painful, and so turgid as often to rupture spontaneously in various parts of the limb, or to be opened by the patient himself, to obtain relief from the tension. The discharge is a clear or milky chyle-like and coagulable fluid, the loss of which may be a serious drain on the patient's vitality; while the weight or bulk of the limb is often so great an inconvenience that the patient is glad to have it removed.

*Variations.*—While in this country the vast majority of cases affect one leg, very rarely both, in countries where it is endemic both legs are often involved, and if only one, the right more often than the left; the scrotum and penis, or the labia and clitoris, are only a little less frequently affected. Filarial thickenings of circumscribed portions of skin sometimes occur, and even pedunculated tumors, chiefly on the anterior part of the thigh, are said to be not uncommon in Fiji and other places. Even in England other parts are occasionally involved; thus I have seen it in the arm, forearm, and hand, in a lad who had had repeated attacks of erysipelas; \* in both ears in a woman who had suffered from eczema of, and behind, the ears on and off for twenty years; in the scrotum in a home case of Dr. S. Mackenzie, and in a case of my own where the man had lived in Smyrna; in the lips—chiefly in the upper one—in a male patient of Mr. Barwell, for which he tied the facial arteries without much benefit; while Hebra and Kaposi mention similar enlargement of the cheek and nose; and in India Vincent Richards saw the whole left side of the face, and Ghosal, the

\* A well-marked case of hand and arm elephantiasis with papillary hypertrophy is published by Hoyer in the *Buffalo Med. and Surg. Jour.*, May, 1886, with woodcut. Thibierge also records a case involving the upper limb in connection with chronic scrofulous lupus and recurrent erysipelas. "Extrait des Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris," séance du 15 Mai, 1896.

female breast affected. In Felkin's case \* a Eurasian woman, the upper segments of all the limbs and the whole trunk, except a small median portion back and front, were involved. It began in early life. Considerable improvement was produced by rest, massage, the constant current, and tonics. In most of these cases the surface is smooth, though often highly vascular.

It must be borne in mind that there are all grades of elephantiasis, from moderate thickening of the skin and subcutaneous tissue up to enormous enlargement, and similarly great variations in aspect exist, according to the papillary hypertrophy or lymphatic and blood-vessel varicosity, and their relative proportions.

For example, the scrotal tumor may be so large as to hang quite down to the ground, and some of them have weighed over a hundred pounds, the largest on record having been 224 pounds. On the other hand, in the form known as "**lymph tumors**," "**lymph scrotum**, or **nevroid elephantiasis**," the enlargement is only moderate, but the lymphatic vessels and spaces are much dilated, make the surface irregular, and during the paroxysmal febrile attacks become turgid, and may rupture, discharging milky or serous fluid.

*Congenital Elephantiasis.*—The characters of most cases differ from the acquired disease. The most common is a vascular form, **elephantiasis telangiectodes**, applied by Virchow to rare cases of congenital origin, but later development, in which there is nevus development of the deep vessels, with overgrowth of the tissues from excessive nutrition. There is but little external change except enlargement, but the limb has a lobulated feel, and firm pressure empties the enlarged vessels temporarily, like squeezing a sponge. I examined and photographed a case of this variety by the kindness of Dr. Savill.† The condition approaches fibromatous enlargement in some respects. **E. lymphangiectodes** is another form, and has been associated with **E. telangiectodes** in one or two instances.

Moncorvo of Rio Janeiro ‡ has recorded a series of cases in infants which had developed *in utero*, but had increased after

\* *Edin. Med. Jour.*, 1889, p. 779.

† *Lancet*, November 8, 1891 ("Hospital Mirror").

‡ *Annales de Derm.*, etc., vol. iv. (1893), p. 233; vol. v. (1894), p. 186; and vol. vi. (1895), p. 965.

birth. In most cases the limbs, though much deformed, were smooth like the adult endemic form. He never found any filaria, and attributed the solid edema to streptococci.

In Europe this kind of case is quite exceptional, but Mainzer \* records such a case affecting the left upper extremity, both legs, the right foot, external genitals, etc. The cause was obscure. Meige's eight cases in four generations of "chronic hereditary trophedema" were of similar character. Nonne † published four congenital cases affecting both limbs. They were all from the same family, in whom nine members through four generations were affected, and there were papillary growths. In Spietschka's case ‡ the face, three limbs, and the genitals were affected. Barwell § has published an extreme case of congenital right-sided hypertrophy of the face.

The **persistent edema** of the face, sometimes called "solid edema," seen in the subjects of recurrent erysipelas or lymphangitis, is really only an inchoate form of elephantiasis. It has a superficial resemblance to myxedema, but lacks the complex symptoms of that disease, and the cheeks are pale instead of being telangiectic. It may be seen in the lower lip as a result of repeated or chronic ulceration of the lip, syphilitic or otherwise.

**Etiology.**—Elephantiasis attacks both sexes at all ages, but is more common in men, as three to one (Waring), and in adult and middle life. It may also be congenital. It is also much more common in the dark than the fair races, and is endemic in India and the Malayan Peninsula, in China and Japan, in Egypt and Arabia, in the West Indies and parts of America, while it occurs sporadically in all parts of the world, except in the Arctic or Antarctic regions. Damp malarious regions in the neighborhood of the sea are especially favorable to its development, and Manson thinks its distribution is identical with that of the mosquito; certainly removal from the endemic area is always advisable, and arrests the progress of the disease,

\* *Deutsch. med. Woch.*, vol. xxv., July 6, 1899, p. 436. Abs. in *Brit. Med. Jour. Supp.*, September 2, 1899.

† *Archiv f. path. Anat.*, vol. cxxv. Heft 1, p. 189, illustrated. Meige's cases are in *Nouvelle Iconographie de la Salpêtrière* No. 6, 1899, p. 453. Abs. *Brit. Jour. Derm.*, vol. xii. (1900), p. 372.

‡ *Archiv f. Derm. u. Syph.*, vol. xxiii. (1891), p. 741, illustrated.

§ *Path. Trans.*, vol. xxxii. (1881), p. 282.

which returns if the patient goes back to the malarious district. Bad living is supposed to be an important predisposing element. V. Richards found that in 236 persons, in seventy-three per cent. one or both parents were affected; but from its pathology tropical elephantiasis is not likely to be hereditary, and the coincidence is probably due to their being exposed to the same influences. Similarly, leprosy and this form of elephantiasis have no relationship, but both occurring in similar climatic conditions they have been found in the same individual—as often as six per cent. in 636 cases (Vincent Richards).

*Pathology.*—The disease is consequent upon occlusion of the lymphatic channels of the part affected, independent of the cause or nature of the obstruction, and whether it is at the trunk or periphery of the lymphatic circulation.

In the endemic cases the researches of Manson, Lewis, Bancroft, and others, go to prove that the obstruction is due to the parent worm, *filaria Bancrofti*,\* blocking up the main lymphatics of the part. Manson's account is as follows: "The parent worms live in the lymphatic trunks, discharge their ova into the lymph stream, by which they are carried to the glands and arrested there, until they hatch; the embryos then enter the general circulation along the lymph vessels, residing in some organ during the day and circulating in the blood at night; mosquitoes abstract them from the blood and act as the intermediary hosts, and transfer them to water, to reach man again when he drinks the contaminated fluid. Chylous hydrocele, chylous ascites, chylous diarrhea, lymph scrotum, as well as other affections, such as chyluria, varicose groin, and axillary glands, with hematozoa, are produced by partial obstruction of the lymph circulation in the glands, directly, by their size, or indirectly, by exciting inflammation.

"Varicosities of the veins, glands, and different lymphatics result, and the lymphatic circulation is carried on by anastomoses, enabling the embryos therefore to get into the blood; but where the obstruction is complete, either the vessels are so

\*The *filaria nocturna* is the embryonic form of this, and is the original *filaria sanguinis hominis* discovered by Lewis; but other blood worms having been found, Manson re-named the first *F. nocturna*, while others are *F. divina*, *perstans*, *Demarquaii*, *Ozzardi*, and *Magalhaesi*. Only *F. nocturna* and *perstans* have a pathological importance.

distended that they rupture, and lymphorrhagia of a more or less persistent character results, either from the scrotum or leg, with varicose glands and filaria embryos in the glands, but none in the blood; or the lymphatics do not rupture, there is complete stasis of lymph, with accumulation on the distal side of the glands, with solidification of the tissues producing elephantiasis; the course of events being, Manson says, "parent female filaria in the lymphatic system of the affected part; injury of the filaria, hence premature expulsion of ova; embolism of lymphatic glands by ova; lymph stasis; recurrent lymphangitis, leading to inflammatory hypertrophy of the parts; here again, no embryos are found in the blood or gland lymph, as they cannot get past the glands, and the parent worms also die from the accumulation of lymph and embryos,"\* and may produce abscess and lymphangitis. Interesting as this is, however, it is only one of many causes of obstruction to the lymphatics; in sporadic cases, in temperate climates, the same result is brought about in a different way. Erysipelas, either as a severe and diffuse cellulitis, or from repeated attacks, is one of the most common causes of lymphatic obstruction. Sabouraud † examined and cultivated the serum during the attacks of lymphangitis of a case of *E. nostras*, and invariably found streptococci of erysipelas, but the cultures in the intervals remained sterile. Phlegmasia dolens is another disease which may occlude the trunk lymphatics and lead to elephantiasis; while long-continued or repeated attacks of eczema of the leg are responsible for a certain number, though they are seldom extreme instances of the affection; in this form the peripheral lymphatics must be the first to get obstructed. In some cases, again, the pathological factor cannot be recognized, and we know only the result of the obstruction. Favoring influences are a pendulous condition of the part, *e. g.*, flabby breasts, and in the case of the lower limbs want of exercise, increasing the natural difficulty of the circulation in the dependent limb; in short, anything hindering the venous as well as the lymphatic flow.

\* Manson finds that the embryos of three species are to be found in the blood stream: the *filaria sanguinis hominis* of Lewis and the *filaria sanguinis hominis* major and minor. The last two have been found in Africans; the first in Asiatics and Americans (*Lancet*, January 3, 1891).

† *Annales de Derm.*, vol. iii. (1892), p. 592.





**CONGENITAL LENTIGINOUS PIGMENTATION.**

**Anatomy.**—This has been studied by Virchow, Kaposi, myself, and many others, with general agreement. On section, the surface is yellowish-white, fibrous, and fatty; in some parts gelatinous, in others, white, or yellowish-white, lymph exudes on pressure. The chief change is in the subcutaneous tissue, which is enormously hypertrophied from increase of fibrous tissue in a more or less developed stage, most of it being distinctly in fibrous bands or networks, while other parts are gelatiniform, with soft fine fibers, and many nuclei and cells. This is contained for the most part in loculi composed of more advanced fibers; the corium is increased in thickness, but in a less degree; the epidermis is also proliferated, the skin changes being most marked where there are papillary growths. Both blood-vessels and lymphatics, and often the nerves, are enormously enlarged, and in advanced cases all the structures are red, the muscles undergoing fibro-fatty changes, the fascia being much thickened, and the bones enlarged, either regularly or irregularly, into exostoses.

**Diagnosis.**—When the disease is fully developed the enormous enlargement, the hardness with firm edema, and, if the surface is affected, the varicose lymphatics and papillary hypertrophy afford no room for error. The “elephantoid fever,” in countries where it is endemic, should excite suspicion in the early stage; it differs from remittent fever in the cold and hot stages being very intense, lasting four or five days, while the intermissions vary from a fortnight to several months. In this country if a part is subjected to repeated attacks of erysipelas, more or less connective tissue hypertrophy is pretty certain to ensue.

**Prognosis.**—In the early stage, if the patient can be removed from the endemic district, the disease may be checked, and even in sporadic cases much may be done to check it, but there is no absolute cure, except when the disease is so situated that the overgrowth can be removed, as in elephantiasis of the genitalia.

The enormous size that may be reached has already been alluded to, but life is rarely endangered, though much burdened by the “too, too solid flesh,” which may clog the patient for any period up to forty years or more.

**Treatment.**—During the fever of endemic cases Fayrer recommends saline aperients, with opiates to procure sleep, and locally, fomentations and soothing measures generally, followed by quinine, or, if there is much anemia, iron; change of climate is, however, of the first importance—to Europe, if the victim be a European, or, at least, away from the endemic neighborhood. The scrotal tumors may be removed by the knife; even those over one hundred pounds have been successfully re-

moved, dissecting out the penis and testicles by incisions along the course of the cords and dorsum penis, and taking away the whole of the affected skin, otherwise recurrence is likely to take place. The tumor should be drained of blood for some hours *before* operation, and then an elastic bandage applied, and a ligature put on at the base, as the number and size of the vessels are very great. The penis and testicles get covered in with cicatricial tissue in from two to four months. In the leg an attempt has been made to starve the growth by ligaturing the femoral artery, but has seldom been permanently successful, and no one advocates this treatment now, the more so, as compression of the main artery is fully as useful. V. Richards strongly recommends this, combined with an exclusively milk diet; but most relief can be afforded by Martin's india-rubber bandage, carefully and firmly applied during the day, and by the use of a light pervious one at night; this relieves the edema, and, except in extreme cases, reduces the limb so much as to enable the patient to get about with comparative ease; of course, this treatment is only palliative, as the limb, if left alone, speedily regains its previous size.

In the cases with warty and soft papillary growths there is often an extremely offensive discharge from the latter, due to sodden and decaying epithelium. Sprinkling the surface with iodoform, or an equivalent, such as euophen one part and boric acid three parts, corrects the fetor and, combined with pressure, assists in producing atrophy of the overgrowth; where there is a hard warty covering, salicylic acid is the best adjuvant. Various other means have been recommended; absorbent remedies, such as iodine and mercury, the latter as a Scott's dressing bandaged on, having been most highly spoken of, but the improvement is only temporary, and probably due chiefly to the rest and bandaging; indeed, the pathology of the disease suggests the futility of all such measures. When the lymphatics are very turgid, during the febrile exacerbations, opening some of them gives great relief by diminishing the tension; at the same time it is almost equivalent to bleeding the patient.

## CLASS V.

### ANOMALIES OF PIGMENTATION.

PIGMENTATION of the skin may be either excessive or deficient, and each of these anomalies may be congenital or acquired. Congenital excess is seen in pigmentary nevi, congenital deficiency in albinism.

Acquired excess is idiopathic or symptomatic, and may be either in small spots, as in lentigo, or diffuse or in large patches, as in chloasma. Acquired deficiency is seen mixed with excess in leukoderma, and as a symptomatic condition in morphea and other diseases. It is a sequel of many eruptions, of which most syphilids and lichen planus afford striking examples.

In all the above cases the excess of pigment is only an exaggeration of a normal process, and is derived from the coloring matter of the blood. Pigmentation of the skin may also be produced by matter foreign to the normal condition of the blood, such as bile, nitrate of silver, arsenic, picric acid, etc., or by coloring matter rubbed into the skin, as in tattooing, chrysarobin applications, etc.

*Pathology.*—We still know very little of the mode in which general pigmentation of the skin is produced. The study of Addison's disease has, however, made it highly probable that whenever the abdominal sympathetic, especially the solar plexus, is irritated, general pigmentation is likely to ensue, but how or why this is brought about is not clear. With regard to local pigmentation from irritants, or as a sequela of skin eruptions, it is a direct consequence of hyperemia, active or passive, and the exudation or extravasation of blood-coloring matter.

There are two pigments of the skin, **Melanin**, or true brownish-black, finely granular epithelial pigment; and **hemosiderin** (Neumann), a golden yellow iron containing blood pigment.

According to Ehrmann's \* studies, the first stage in the em-

\* "Das melanotische Pigment, und die Pigment bildenden Zellen des Menschen und der Wirbelthiere in ihrer Entwicklung nebst Bemerkun-

bryo is the production of a special cell, which he calls a melanoblast, by the separation of a cell from the mesoderm which, lying between the meso- and ecto-derm, forms pigment granules within itself. No other cell can change into a melanoblast which perpetuates itself throughout the life of the organism. It is neither an epithelial nor a connective tissue cell, forms its own pigment from hemoglobin, and carries it itself along its anastomosing processes. Melanin lying outside cells represents disintegrated melanoblasts and all other free-lying pigment hematoidia.

As is well known the pigment is deposited in the rete mucosum, and almost exclusively in the lowest layers, but it is still a matter of dispute as to how it gets there. According to Ehrmann's older observations, chiefly on frogs, in 1884 and 1886, pigment may, however, often be seen in the upper layers of the corium as well, on its way from the vessels to the rete, where it is deposited in the deeper layers, the cells of which, at least in frogs, possess ameboid prolongations, and also in the corium there are peculiar movable cells, which send branches between the epidermal cells. It is by these protoplasmic channels that the pigment is transferred from the corium to the deeper layers of the rete, and thence to the higher layers of the rete cells.

Unna \* doubts the existence of these special cells, admitting the presence of pigmented connective tissue cells. He thinks the supposed branches are simply lymph channels, and that the pigment is conveyed by them into the lymph stream, first to the spaces between the cells and then within them, the pigment being especially abundant at the distal pole of the nucleus; thus, he agrees that the pigment is derived from the blood, and is conveyed from the cutis.

Audry and others deny the presence of pigment below the *gen über Blutbildung und Haarwechsel*," 1896, Th. G. Fischer & Co., Cassel, twelve colored plates.

\* This process can be traced in amphibia because they possess a special layer of these pigmented, mobile connective tissue cells, and it was observed that where the epidermis was most pigmented, the connective tissue cells immediately beneath were almost pigmentless, and hence it is evident that they had transferred their pigment to the rete cells. Unna disputes the value of arguments founded on observations of frogs for the human subject.

basal layer of the rete, and Kromayer thinks the chromatophores are protoplasmic processes from epithelial cells. Audry considers that the pigment from the blood reaches the epidermis, where it is partly built up. Thence it is not reabsorbed, but transferred by wandering cells which partly pass into the lymph spaces, partly remain in interstices of connective tissue vessels, where they become fixed stellate cells. All the above observers conclude that the pigment is conveyed to and merely deposited in the basal layer of the rete, but another theory, put forward by Kaposi, and later by Post, is that it is actually secreted by it.

Few accept Jarisch's view that the pigment is formed by metabolism of epidermis cells by regressive metamorphosis, and travels to and from the corium by lymph channels.

Post's investigations led him to the following conclusions:

1. The pigment of the epidermis arises in the protoplasm of the epidermal cells in the form of minute rods.
  2. Branched pigment cells are developed in the epidermis from ordinary epithelial cells, and convey pigment to the hair and feathers.
  3. Where these branched cells appear in the epidermis, pigmented connective tissue cells often fail.
  4. The function of the basal rete cells is to form pigment.
  5. Pigment may find its way from the epidermis to the corium.
  6. Pigment may occur in the corium without pigmentation of the corresponding epidermis.
  7. Pigment arises as a result of a special metabolic product of the skin, according to race, local structure, and irritation in ordinary and branched epithelial cells and connective tissue cells.
- The connective tissue pigmented cells regulate metabolism by dealing with superfluous pigment-forming substances. The epidermic branched cells, by their energetic pigment formation, replace the connective tissue pigment cells, and convey pigment to the horny cells of epidermal structures.

According to Post:

1. Lentigines are a normal type of hyper-pigmentation in a small area.
2. Addison's disease is a diffuse normal hyper-pigmentation.
3. Pigmentary nevi show abnormal formation of pigment in

both epidermis and connective tissue in addition to normal hyper-pigmentation of the epidermis.

Melanotic growths may lead to abnormal pigment formation in the neighboring epidermis and even in mucous membranes. He does not believe in the conveyance by special cells of pigment derived from hemoglobin.

Ehrmann explains the mechanism of vitiligo or leukoderma as follows:

While pigment is duly formed in the corium, owing to an absence of the transferring cells it cannot reach the rete, but in albinism there is a total absence of pigment-forming cells. In vitiligo the untransferred pigment in the corium is partly reabsorbed, partly transferred to the adjoining normal skin; hence the excess of pigmentation that is generally observed on the borders of the white patch. What leads to the atrophy of these pigment-transferring cells, and why in progressive leukoderma an increase of pigment precedes its disappearance, is not explained.

The pigmentation of hair is closely analogous. The pigment-forming cells are situated in the hair papilla, *i. e.*, deep in the corium; connected with these, branched cells, similar to those in the rete, are situated in the hair root, and send their prolongations between the epidermis cells of the hair, and the pigment is by their means transferred to the upper part of the hair. In addition to the pigment cells of the papillæ there are others in the matrix, and these two sets are connected by intermediate ones. Canities, or white hair, is practically leukoderma of the hair, and, as in that disease, while the pigment cells of the papilla are still present in all cases except in senile atrophy, both the transferring cells and also the pigment-forming cells of the root are absent, and hence it would appear that here also it is not the formation of pigment that is defective, but the means of transmission. According to Riehl the variations in color of the human hair are dependent not on the different amount of air in the hair, or the color of the individual hair cells, or the amount of sebum on the surface, but on the varying quantity of pigment in the horny substance of the hair.

Unna \* endeavors to classify pigmentations according to whether they consist of melanin or hemosiderin. Although

\* "Histopathology," with good bibliography, p. 975.

assuming more knowledge than we actually possess, the attempt is ingenious.

*Melanosis* includes:

- |                       |   |
|-----------------------|---|
| a. Actinic melanosis. | { Ephelis.<br>Pinta cerulea.  |
| β. Toxic melanosis.   | { Pigmentary syphilid.<br>Addison's disease.<br>Arsenical pigmentation.<br>Macula cerulea from pediculus pubis. |
| γ. Reflex melanosis   | Chloasma.   |
- In all these the iron reaction can never be obtained.

*Hemosiderosis* includes :

- |   |
|---|
| { Post-hemorrhagic pigmentations.<br>Various chronic stagnation pigmentations.<br>Sarcomatous pigmentations.<br>Ulcerations and scar pigmentations. |
|---|

All these give the iron reaction.

## LENTIGO.

*Deriv.*—*Lens*, a lentil.

*Synonyms.*—Freckles; Ephelids; *Fr.*, Lentigo;  
*Ger.*, Sommersprosse.

*Definition.*—Circumscribed spots or patches of pigment of small size, which occur chiefly on the face and hands.

*Symptoms.*—This well-known affection begins usually in the second decade of life, and consists of spots of pigment, roundish or irregular in shape, pin's head to split pea in size, and yellowish to yellowish-brown or umber, sepia black, and occasionally greenish, in color. They occur chiefly on the face, especially at the root of the nose and adjoining part of the cheeks, on the back of the hands, and less frequently on covered parts, such as the forearms and arms near the elbow, the back, buttocks, and penis.\* There may be only a moderate number about the nose, or the whole face and neck may be thickly peppered with them, especially common in red-haired

\* A case of a man with lentigines in all these positions attended at U.C.H for a chronic dermatitis herpetiformis; he was fair and reddish-haired. Hebra figures such a case in his Atlas, Lief viii., Plate V., affecting the buttocks and penis.

persons, and in bad cases large, dark, irregular patches are mixed up with the more numerous small kind, and the affection is then very conspicuous and disfiguring.

Sangster showed a young man to the Dermatological Society in 1893 who had extensive freckles and pigment patches of a square inch in size all over the body, buttocks, and thighs, nearly to the knees; the face was free. It began in the first or second year of life. A brother had the same, and his mother, who died of cancer, was similarly pigmented on the upper part of the chest.

A less common form is where a dozen or two discrete, deep-tinted, pea-sized spots are scattered irregularly over the face, without any of the smaller ones interspersed. Freckles generally appear first in the summer, sometimes suddenly, and are always most conspicuous at that season, while in the dark days of winter they fade away more or less, reappearing in the sunny season.

When similar spots, whether congenital or acquired, occur either on covered or uncovered parts independent of seasonal change, they are popularly called "**cold freckles**," and some authors reserve the term "**lentigo**" for these, and give the small ones only, which are most conspicuous in summer, the title of **ephelids**; but the distinction is futile.

In a patient of mine, a young lady, *æt.* twenty-six, pigment spots from a millet to a hemp seed in size commenced seven years before on the thighs, and had continued to increase in numbers until there were many scores, chiefly on the thighs and front of the trunk; some months before I saw her a few appeared on the sides of the face. There were anemia and constipation, and she held a post of anxious responsibility, but there was no other traceable cause.

In a gentleman,\* *æt.* thirty-nine, with locomotor ataxy of specific origin, there was a pigment patch on the right cheek a centimeter square, which began the size of a pin's head five years before. It had been removed four or five times by electrolysis and ethylate of sodium, and had not returned for seven or eight months until after the last removal, when it reappeared in two months. He had three other hemp-seed spots, almost black, two of them on the left foot. Possibly this is an early

\*Mr. D., Private Notes, vol. G., p. 100.

case of lentigo senilis. Similar spots are sometimes seen \* on the lips and oral mucous membranes. Hutchinson † has recorded the case of two girls, twins, brunettes, and quite healthy, in whom freckle-like pigment spots developed round the mouth at the age of three, and at the age of nine there was dense freckling on the lower lip, including the red part and mucous membrane, and slight pigmentation on the upper lip. Both girls had exactly the same distribution; two years later it was unaltered. Balzer ‡ had a case in which it was not only round the mouth, but on the eyelids, back of the hands, and on the forearms. It came after typhoid.

Lentiginous pigmentation is sometimes unilateral. Such a case is depicted in my Atlas, § occupying a part of the domain of the supra-orbital nerve and second division of the fifth nerve. Robinson, Fordyce, Fox, and Bronson of New York have had similar cases, and one was published by Féré in France.||

In a lady of forty lentigines and soft pigmented fibromata, about one-twelfth to one-eighth of an inch, developed from telangiectases. I saw one spot, half pigmented and half telangiectic.

As a symptomatic condition it may be seen as a prominent feature of atrophoderma or xeroderma pigmentosa, beginning then in the first or second year of life, while it also forms a part of another form of atrophy of the skin, that of old age, occurring then on covered parts. I have also seen it following eczema in senile persons.

Pigmented moles sometimes commence apparently as lentigo, and subsequently become prominent and assume the mole char-

\* Knowsley Sibley's case, *Clinical Journal*, August 6, 1896, p. 231.

† Hutchinson's small Atlas, Plate CXLi., and *Archives*, vol. vii. (1896), p. 290.

‡ *Annales de Derm. et de Syph.*, vol. viii. (1897), p. 1106.

§ Plate LII., Fig. 2. The patient was a girl of six and a half. The pigmentation began when she was six months old, the size of a pea, and gradually increased until she was four and a half years old, and had since remained stationary.

|| *Nouvelle Iconographie de la Salpêtrière*, vol. i., No. 3, 1888. The patient was an epileptic. Fordyce and Bronson's cases had infantile paralysis.

Robinson's was the case of a woman, æt. twenty-nine, in whom lentiginous spots not larger than a pin's point began in childhood, and developed into a patch occupying one side of the forehead only.

acter. A young girl and her brother were brought to me with lentigo because their father and aunt had numerous pigmented moles which had started as simple pigment spots.

**Lentigo Senilis.** Lentigo maligna, or senile freckles, has been described by Hutchinson \* as occurring in old people. It commences as small irregular pigment spots, from sepia to black in color, on the eyelids or orbital region, and they coalesce into a patch or patches affecting even the palpebral conjunctiva, and on these eventually, perhaps after many years, epithelioma is very likely to supervene. He has had six cases. I have seen several such spots and patches before and two after the epithelioma period, not only about the orbit, but on the forehead and cheek; and Dubreuilh † has had four cases, in one of which sarcoma had supervened.

**Etiology.**—This affection is rare before eight years old, but Wilson says it is sometimes congenital, appearing soon after birth and continuing throughout life, and I have also seen ‡ cases in which this account of it was given; but this form should be classed with pigmentary nevi, and often develops into moles. The ordinary variety often disappears as old age approaches. Both sexes are equally liable to it, but it is much more common in those of fair complexion, and red-haired people are seldom free. At the same time freckles may be seen in dark-complexioned individuals, and even in mulattoes.

The chief exciting cause, by almost universal consent, is sunlight, direct or diffuse; hence their prevalence in summer, perhaps because pigment activity generally is greatest in strong sunlight.

Hebra rejects the sun theory, because they may occur in covered parts, but probably there are other causes also, which we are unable to trace, and it may not be essential that the sun's rays fall directly on the affected region. Defective nutrition is a cause of symptomatic lentigo, and it is seen in association with anemia, constipation, and lesions of the abdominal viscera.

\* Hutchinson's *Archives*, vol. v. (1894), p. 257, Plate CVI., and in smaller Atlas.

† Dubreuilh, *Annales de Derm. et de Syph.*, vol. v. (1894), p. 1092.

‡ Miss H., Private Notes, vol. ii. p. 264.





LEUKO- AND MELANODERMA. IN THIS CASE THE DARK PART WAS ALMOST BLACK.

To face page 663.

*Pathology.*—Lentigo differs from other pigmentation only in being situated in a circumscribed portion of the rete.

*Anatomy.*—Moritz Cohn \* of Hamburg has investigated the anatomy of ephelids, lentigines, and nævi pigmentosi, and finds that in ephelids the cutis and vessels are normal, the only change being the presence of pigment in the basal layer of the epidermis, while in lentigines and nevi the pigment is always in all the layers of the epidermis and in the cutis, down to the subpapillary layer, and that the vessels of the cutis are always hyperplastic and the endothelial nuclei swollen.

It is evident that he uses the term lentigines for those congenital pigment spots which I have already pointed out are really pigmentary nevi.

*Treatment.*—This will be given under Chloasma.

## CHLOASMA.

*Deriv.*—χλοαζω, to be pale green.

*Definition.*—Chloasma is a generic term for both the irregularly shaped and sized patches of yellowish, brownish, or blackish pigmentation which occur chiefly upon the face, and for the more diffuse discolorations which may occur anywhere or everywhere upon the body.

*Symptoms.*—The only change in the skin is in the color of it. When in patches their borders are fairly well defined. Though oftentimes round or oval, they are infinitely varied in size and shape, and while the tint is most commonly fawn-colored, yellowish-brown, or brown, it may deepen into bronze or black (*melanoderma*).

In the diffuse form the borders generally merge imperceptibly into the normal skin, and although the pigmentation may be very extensive, even to universality, certain parts of the body, chiefly those that are normally pigmented, are generally deeper in tint than the rest, viz., the axillæ, nipples, umbilicus, pubes, and genitalia.

*Etiology.*—The idiopathic form is generally the consequence of some external irritation, and is generally localized to the part irritated. It may, however, arise without apparent cause. The principal causes are:

*Counter-Irritants*, such as sinapisms,† vesicants, etc., which

\* *Monatsh. f. p. Derm.*, vol. xii. (1819), p. 119, illustrated.

† Dubreuilh published a case which extended beyond the site of the sinapism, and went all around the body.—*Ann. de Derm. et de Syph.*, vol. ii. (1891) p. 76.

may be followed by pigmentation, generally of a brownish hue, on their site of application. I have also seen deep pigmentation follow an abrasion, a phenomenon of the same class, while the heat of the sun produces the well-known sunburn, and artificial heat discoloration of the part exposed, sometimes in rings (see *Erythema ab igne*), as may be seen on the legs of stokers or others subjected to similar influences. Friction, pressure, or scratching, if long continued, also produces pigmentation, which may be both extensive and permanent. This is seen in its highest degree in severely itching diseases, like prurigo and phthiriasis, as in tramps\* and aged people, constituting the *pityriasis nigra* of Willan. In two cases recorded by Thibierge, and in another by Chatin, the oral mucous membrane was also stained. A case† of permanent pigmentation in a young man, following exposure to great cold in Sweden, came under my notice some years ago. (See *Keratosis nigricans*.) Lees showed a child, æt. eleven, at the Dermatological Society, in whom, when six months old, small red spots appeared, and left pigmented areas, which increased in size, the longest being two inches by one; they were still increasing in number and size, and were scattered over the neck, trunk, and limbs. Gautier‡ records a case of a boy of six in whom pigmented patches from sepia to almost black began to form at the age of two years, and were distributed all over the body; precocious maturity of the genital organs preceded and accompanied the pigmentation, but the hair of the head was ill-developed.

In a case shown by Bunch to the Dermatological Society a youth of eighteen, six weeks after a fall on his left side, noticed

\* Greenhow published cases of this under the name of "Vagabond's Disease simulating Morbus Addisonii," in *Clin. Soc. Trans.*, vol. ix. Hebra's Atlas, Lief 5, Plate VIII. shows sepia pigmentation; while in Alibert's Quarto Edition of 1832 there is a Plate at p. 526, where the skin was quite black where pediculi were most numerous. The history is at p. 746. Audry has examined the skin histologically; he found abundant pigment in the cylindrical layer of the rete, and also uniformly spread in small quantity throughout the rete. There was chronic inflammation in the corium and pigment in blocks and grains in various parts of it.—*four. Mal. Cutanées*, vol. xiii. (1901), p. 213.

† *Clin. Soc. Trans.*, vol. xiv. p. 152. A somewhat similar case, also following exposure to cold, is recorded by Carrington in the same volume.

‡ *Abs. Ann. de Derm. et de Syph.*, vol. i., 1890.

a small patch of pigmentation over the site of injury. It grew for two and a half years, and when seen three years after the accident it was 3 1-2 by 2 1-2 inches and of a brown color.

**Symptomatic Chloasma** may be a sequel or concomitant of various skin eruptions, may be consequent on, or sympathetic with, physiological or pathological conditions of the uterus, or due to cachexia.

As a sequel to various lesions of the skin, independent of pruritus, it follows syphilids, varying from fawn to dark brown, and often of long duration; lichen planus, in which it is very deep, almost black sometimes, and also lasting long; after urticaria in exceptional cases; after erythema marginatum and other forms of erythema exudativum, where it is often marked, but not, as a rule, very persistent, and after repeated exposure to the Röntgen rays.

As a concomitant symptom, it may be seen in senile atrophy of the skin, in which it is diffuse; in urticaria pigmentosa; in sclerodermia, both diffuse and circumscribed, in which it is generally in streaks or patches; in fibroma, in which it is in large blotches on the trunk, but on the face it may be diffuse; in the pigmentary syphilid, where it is limited to the neck and associated with leukodermia; and in rare instances with psoriasis and pityriasis rubra. Below the knee pigmentation is easily produced by slight causes, especially when there are varicose veins.

After a slight injury or inflammation blood-coloring matter is effused into the tissues, either by transudation or by capillary extravasation. This is seen in its most extreme form where eczema has supervened on bad varicose veins, leaving the tissues round the ankle infiltrated and almost black. In a very few cases pigmentation on the face and chest resembling tinea versicolor has been observed where the demodex folliculorum has been very abundant (see Demodex).

The **orange and café-au-lait** patches so often seen in the lower part of the legs are due to capillary rupture, doubtless consequent on an antecedent lesion, morbid or traumatic, though it is often so trivial as to escape notice. Perhaps a similar explanation accounts for the rare cases in which appar-

ently causeless patches of pigment have appeared on the front of the legs, often quite symmetrically. McMurray of Sydney sent me photographs of such a case in a boy of ten; they had been present two years. Hutchinson \* records a similar case in a boy of thirteen; they faded in about four years from the onset. Two cases have been shown at the Dermatological Society of London by S. Mackenzie and Perry, also in a boy, which suggested that the condition was of similar origin to café-au-lait patches.

*Chloasma Uterinum* may be a physiological or sympathetic pigmentary disturbance. It is seen on the linea alba, the nipples, cheeks, and forehead, of pregnant women until after parturition, and occurs in others also, who suffer from uterine irritation. The color is a dirty yellow or brownish tint, defined or shading into the surrounding skin. Its most common and characteristic position is on the forehead, where it forms a continuous or interrupted patch, with irregular borders, between the hair and eyebrows, expanding at the temples, but it may be almost all over the face, and in rare instances on the trunk and limbs. It may occur at any time from puberty to the climacteric, but in single women is rare before thirty. A singular variety is recorded by Swayne in a woman, in whom during the last three months of three successive pregnancies the face, arms, hands, and legs were spotted like a leopard, and remained so until after her confinement. In a lady, † æt. thirty, sent to me by Dr. Saltzmann, the color became deeper with each successive pregnancy, until the whole face, neck, and bend of the elbow were bronzed as if she had been exposed to a tropical sun, while there were patches of a darker, almost black hue on the forehead, temples, and round the mouth. In a woman, æt. forty-five, under my colleague, Sir John Williams, for ovarian tumor, four pigment spots, from one-third to three-quarters of an inch across, developed slowly and symmetrically just above the umbilicus. Kaposi ‡ knew a lady with a pigmented mole two inches square on the side of the neck, which became

\* *Archives*, vol. iv. (1893). S. Mackenzie, *Brit. Jour. Derm.*, vol. x. (1898), p. 416. Perry, *loc. cit.*, vol. xiii. (1901), p. 54. This case had punctiform telangiectases like Schomberg's spreading case in the same volume, p. 1.

† Mrs. H., vol. C, p. 27.

‡ *Loc. cit.*, Berlin International Congress.

quite black at each pregnancy, and was the first recognizable sign of her condition. Boxall had a case in which the cicatrix of an ovariectomy done during pregnancy became pigmented a few weeks after the operation.

A similar pigmentation may be occasionally met with in disorders of other abdominal viscera. Thus, in abdominal tuberculosis, Guéneau de Mussy has noted a pigmentation of the face like that of chloasma uterinum; sometimes, in addition to the nose and cheeks, the backs of the hands and even other parts may be discolored almost like Addison's disease. He has also seen it in four cases of cirrhosis with ascites, and in one of cancer of the stomach. I have also seen it in a lady who suffered from extreme chronic constipation, but with no uterine symptoms. Cases occur sometimes in quite young persons in which the cause is untraceable. In a healthy married woman of thirty-three a pigment spot first appeared on the upper lip and spread over the inner side of the cheeks, orbits, and forehead, like the usual chloasma uterinum.

In Graves' \* disease, pigmentation, either frecklelike or patchy, is not uncommon about the orbits and in those parts of the body where there is normally some pigment; it may be universal or in the form of leuko- and melano-dermia (see also p. 67).

**Bronze Diabetes.** In 1882 Hanriot and Chauffard † were the first to describe general bronzing of the skin in association with diabetes mellitus and hypertrophic cirrhosis of the liver, which they called bronze diabetes. Osler ‡ and others have shown since that the diabetes is a late epiphenomenon, and that the disease is a hemo-chromatosis, characterized by accumulation of an iron-containing and an iron-free pigment, which set up a chronic interstitial inflammation of the liver and pancreas, and when a certain grade of inflammation of the pancreas is reached

\* A case is figured by Drummond like leuko- and melano-dermia in *Brit. Med. Jour.*, May 16, 1887. See also H. W. G. Mackenzie in *Lancet*, September 13, 1890, pp. 5-46, with many references.

† A later paper, by Hanriot alone, gives a *résumé* to date, and discusses the different views as to the pathogeny, *Brit. Med. Jour.*, January 25, 1896, p. 206.

‡ *Brit. Med. Jour.*, December 9, 1899. Hypertrophic cirrhosis of liver with bronzing.

diabetes ensues, and is the beginning of the end. It is a special disease, and of thirty known cases all have been males.

*Blue or slate-colored pigmentation*, indistinguishable from argyria in tint, may also be observed in the same connection of pigmentary cirrhosis of the liver and pancreas. In a case recorded by Dr. Maude Abbott,\* the patient was a woman known in the hospital as "Blue Mary," from her slaty color, deepest on the exposed parts, face, neck, and hands, but it was general to some degree. At her death the liver and kidneys were found as described, but very little pigmentation could be seen in the skin. A slate-colored case without any history of the ingestion of nitrate of silver was shown at the Dermatological Society some time ago, by Mitchell Bruce,† and I am now inclined to think that the case represented on Plate XXXVIII. of my Atlas as "Argyria" may also belong to this class. In both Bruce's and my case the men showed no evidence of visceral disease. Both had had syphilis. Neither had glycosuria.

Sponder draws attention to the frequency of pigment patches in association with rheumatoid arthritis; sometimes it is lentiginous, in others, in large patches.

Discoloration of the skin is common in many cachectic states. Thus in secondary syphilis there is a very characteristic earthy hue of the face. In nodular leprosy of Europeans, besides various discolored patches on the body, there is a general bronzing or livid brown tint late in the disease, and a fawn or yellow color in the early stage. In Addison's disease there is the well-known general bronzing of the skin, extending to the mucous membranes. In cancer there is a sallow lemon tint. In the case of a man suffering from multiple melanotic sarcomata, Wickham Legge‡ observed nitrate of silverlike pigmentation on the face, neck, and hands, but very little elsewhere. In malaria the skin may be of a yellowish or chestnut brown to black color, chiefly after long exposure to its influence, but it occurs in an extreme and acute development in the pernicious forms, as in the "Black disease" of the Garo Hills in Assam.§

\* M. Abbott, *Jour. Path. and Bacteriology*, vol. vii. (1900), p. 55; abs. *Brit. Jour. Derm.*, vol. xiii. (1900), p. 63.

† Mitchell Bruce, *Internat. Atlas of Rare Diseases*, Plate XVII.

‡ *Path. Soc. Trans.*, vol. xxxv. (1884), p. 367, with colored plate.

§ Dr. Clark in *Indian Medical Gazette*, and full abstract in *Brit. Med. Jour.*, November 29, 1884.

*Diagnosis.*—The diagnosis can seldom offer any difficulty, except as regards the cause of the discoloration, and this can be identified by a knowledge of its etiology in general and the modifications produced under various circumstances. In a few cases pigmentation on the skin may simulate pigmentation in it, as is seen in that produced by various pigments by hysterical women and malingerers. These can always be washed off with a weak solution of chlorinated lime, if not with soap and water.

The discoloration of chromidrosis can also be washed off with spirit of chloroform or ether.

Various fungi may flourish and produce discoloration on the skin, such as that of *tinea versicolor*, *erythrasma*, and the Mexican disease *carate* or *mal del Pinto*. On scraping off some of the skin and placing it under the microscope, as directed under parasitic diseases, the spores or mycelium can be readily detected in these forms.

*Prognosis.*—This depends, as a rule, on whether the cause is still in activity, and upon the length of time it has been in operation. Otherwise transitory pigmentations may become permanent if the cause be frequently repeated, as in some cases of *chloasma uterinum*.

Pigmentations that are sequelæ or concomitants of eruptions and those due to irritation generally fade gradually away, except when on the lower part of the leg, and varicose veins are present.

*Treatment.*—Careful investigation into the cause must be made, and when this is removable by appropriate measures, the pigmentation will in many cases slowly disappear. It is chiefly for pigmentation on the face or other exposed part that advice is sought, especially for lentigines and *chloasma uterinum*. Assuming the cause to have been obviated, local applications may be of service, and these are chiefly such as remove the epidermis more or less completely.

Unfortunately the relief is too often only temporary, the pigmentation gradually returning. Corrosive sublimate in from half to five grains to the ounce of almond emulsion, dabbed on several times a day, is one of the best applications, the strength being adapted to the sensitiveness of the patient's skin, and two grains is the maximum that should be used until that is ascertained. Hebra recommends a one per cent. solution of hydrarg.

perchlorid. to be applied on lint cut to the exact size of the discoloration, and kept constantly wet with the solution for three or four hours (care must be taken to apply blotting paper to the edges of the lint, as the solution is apt to get dangerously concentrated there), vesication ensues, the raised epidermis is cut away, and the raw surface beneath dusted with starch powder. The remedy is severe and not always permanently successful. Other formulæ of this kind are given in the Appendix (Lotions, F. 11, 12, 13).

Citric acid solution 3ss, to 3j, has been successful; acetic acid and sulphur made into a paste is suggested by Neumann.

Pure carbolic acid applied carefully with a match, tincture of iodine, nitrate of zinc paste, nitrate of mercury ointment diluted one to two, nitrate of zinc ointment, veratria ten or twenty grains to the ounce of lard, and a host of others have had advocates, and testify rather to the unsatisfactory results of treatment than to their success; carbolic acid is one of the best; it turns the skin white and it exfoliates in a few days.

Salicylic acid is worth trying, applied in the form of paste or of Unna's plaster for twenty-four hours, or as a saturated solution in alcohol applied continuously and kept constantly wet for several hours. Desquamation may thus be obtained without going too far, as may happen without great care with strong solutions of corrosive sublimate and the like.

Piffard used peroxid of hydrogen to a melsamic patch, and partially removed it, but whether temporarily or permanently he did not know. Leloir \* obtained permanent success with the following treatment: The part was first thoroughly cleansed with soft soap and alcohol, then painted with several layers of a fifteen per cent. solution of chrysarobin in chloroform, and this was then covered with a layer of traumaticin, the applications being removed when they began to peel off. He not only claims to have cured many forms of chloasma, but even flat or slightly rugose pigmentary nevi. Hitherto, however, it has not been successful in my hands, and in one case the patient thought the discoloration was deepened.

Brocq recommends that the emplastrum Vigo or emplastrum rubrum of Vidal should be applied overnight, and perchlorid

\* "Traitement des Mélandermies," *Jour. des Connaissances Médicales*, July 1, 1886; abs. *Ann. de Derm. et de Syph.*, vol. vii., p. 561.

of mercury (a grain to the ounce or more) applied as a lotion twice a day.

Hardaway uses superficial electrolysis for ephelids, the needle not being introduced deeper than the epidermis. It is well adapted and quite manageable for a few lentiginous spots, and I have had excellent results with this plan.

Hardy says that the sulphur waters of Barèges and Luchon, in the form of douches, are very effectual sometimes for large chloasmic patches. Harrogate and Strathpeffer waters would act in the same way.

**Discoloration from matter foreign to the blood** may here be described.

*Jaundice*, produced by the circulation of bile in the blood, produces various tints of yellow up to olive green or even bronze. Dr. Seymour Taylor showed a case at the Ophthalmological Society in April, 1886, in which the lower lid on the right side was permanently, while that on the left side had been temporarily stained of a dark green color, in a patient who had had jaundice eighteen years previously.

In a case of Cavafy's \* leukoderma, preceded by dark general pigmentation, followed an attack of jaundice in a man æt. twenty-nine.

The connection of jaundice and xanthoma will be reverted to under the latter disease.

With respect to drugs, the most important discoloration is that produced by *Nitrate of Silver*. This discoloration of the skin is known as **argyria** and was much more frequent before silver nitrate was displaced by bromids in the treatment of epilepsy. Moritz states that the reduced metal is deposited chiefly in the rete, sweat glands, and round the hair-roots, while the sebaceous glands escape; in fact, in almost the same position as ordinary pigmentation. Riemer and Neumann state that it is found in all parts of the skin, except the lining cells of the glands and the cells of the rete, the deposit being greatest immediately beneath that layer. It only occurs after very prolonged administration. Krahmer says the smallest quantity that has induced it is 450 grains, and in Riemer's case 1740 grains had been taken during twelve months before the first

\* *Path. Trans.*, vol. xxxii. (1881), p. 259.

traces of argyria appeared. It has also been excited by the topical application of the silver salt solution to the throat, continued for a long time. I have met with a case\* in which the blueness did not develop for many years after the topical applications had ceased to be made.

Unfortunately, when once it has shown itself, nothing can stop its further development. It is of various bluish-gray, slate, leaden, bronze, bluish, or blackish shades of color. It is general in distribution, including the visible mucous membranes, but more marked on the parts most exposed to light, such as the face and hands. For treatment iodid of potassium has been recommended, but it has little, if any, effect, as a rule; Duhring quotes Yandell to the effect that in two syphilitic patients, by the prolonged administration of large doses of the iodid for several months, combined with mercurial vapor baths, the decolorization was slowly effected.

*Arsenic* may also produce a brownish or bronzy pigmentation; it has been described along with the eruptions produced by the drug. The color gradually fades when it is given up, unless the administration has been very long, when I have known it last for many years. (See *Arsenic* under Drug Eruptions, p. 474).

The slate-colored or brownish pigmentation left on the site of psoriasis patches, when arsenic has been given, has already been described under psoriasis.

*Picric acid*, in large doses, produces a yellowish color of the conjunctiva, of the skin, and of the urine.

*Tattooing*.—After the pattern has been pricked out with needles, various coloring matters are rubbed in. Generally gunpowder, vermilion, indigo, or carbon is employed. Hebra † figures a remarkable instance where the whole body was elaborately patterned. W. Anderson showed another such instance of Burmese tattooing at the Dermatological Society in 1892, and there was another case of a woman in Barnum's show. When small and in a disfiguring position, and the removal is desired, excision is the only plan, the particles being too deep

\* Author's Atlas, Plate XXXVIII., Fig. 1. This plate represents the color of argyria, but as the history of the case shows, he had not had any of the salt for thirty years, and, as stated on page 615, it was probably a case of pigmentation from fibrosis of the liver and pancreas.

† Atlas, Lieferung viii., Tafel x.



TATTOOING (JAPANESE).



for any less radical measures. Ohmann Desmesnil says that by retattooing with glycerole of papoid the tissue round the particles is dissolved, and the freed particles may be absorbed by the lymphatics or thrown off by the epidermis. This requires confirmation. Grains of gunpowder blown into the skin are also best treated by excisions carefully planned, so as to include as many grains in one cut as possible: if done antiseptically, union by first intention may be obtained. I had a most successful case of this kind; a year after the operation no trace of the incisions could be seen.

These tattoo marks are sometimes the starting-point of cutaneous lesions. Thus Fox \* of New York describes and figures a tattoo mark of an anchor on the lines of which twenty warts had developed. Syphilis and septicemia have been implanted by ignorant or careless operators.

## ALBINISM.

*Deriv.*—*Albus*, white.

*Synonyms.*—Albinismus; Congenital leukoderma; Congenital leukasmus; Congenital leukopathia; Congenital achromia.

*Symptoms.*—Albinism is the congenital absence of pigment in the tissues, and may be either universal or partial. Albinos, as people with universal albinism are called, are characterized by a total absence of coloring matter in the skin, hair, iris, and choroid. Their skin is either perfectly white, or pinkish in the thinner parts where the blood-vessels are partially visible. The hair is fine and soft, with a silky luster, is either perfectly white or of a whitish-yellow tint, as a rule, but in a case recorded by Folker † it was red. The pupil appears red, and the iris pink, owing to the absence of pigment in it and the choroid, allowing the color of the vessels to show through; and as the retina has no protection against excess of light, photophobia is always present, and the irides, eyeballs, and lids are in a constant state of movement. Sometimes, when viewed obliquely, the iris has a pale blue tint, the result of interference of light, and B. Squire

\* *Amer. Jour. Cut. and Gen.-Urin. Dis.*, vol. ii. p. 216.

† *Lancet*, May 31, 1879.

has recorded a case where the irides were dark blue, and consequently there was no photophobia.

As a rule, albinos are weakly both in body and mind, of short stature, with a proneness to chest disease, but there are many exceptions, a notable one being a late well-known English statesman.

Animals and birds are also subject to albinism, *e. g.*, ferrets, blackbirds, etc.

Partial albinism is much more frequent, and of course more noticeable in colored races, but is also to be seen in white people. The absence of pigment occurs in irregularly outlined, isolated patches of various sizes, the borders of which may be well or ill defined, according to whether the adjoining skin is normally or slightly under-pigmented, but it is never more strongly pigmented. They are the antitheses of the flat pigmented moles, and, like them, may have a nerve distribution,\* but are rarely, if ever, symmetrical. Any hairs on the affected areas are also white.

*Etiology.*—Heredity is the only known cause of the complete form, and this in the shape of family prevalence, as where there are several children in a family more than one are almost sure to be albinos, and Lesser knew of a family where six out of seven were so. In some tropical countries, such as Loango, Lower Guinea, it is said to be endemic. On the other hand, it is exceptional for the parents to be affected; but in a case mentioned by Schlegel † the grandfather was an albino, and Marey ‡ describes the Cape May albinos, in which the mother and father “were fair emblems of the African race,” and of their children three were black and three white, born in the following order: two consecutive black boys, two consecutive white girls, one black girl, one white boy.

At a medical meeting in the Leeward Islands in 1892, A. P. Boon showed two albino negroes, and the father related that his uncle’s wife always bore twins, one of which was white and

\* In Hutchinson’s *Smaller Atlas* Plates I. and II. show a remarkable case in a Hindoo with hemiplegic distribution like some cases of *ichthyosis hystrix*, in streaks also. In Ziemssen’s “*Handbook of Skin Diseases*,” p. 447, a case is figured with a white patch on the abdomen.

† “*Ein Beitrag zur näheren Kenntniss der Albinos*” (Meiningen, 1824), quoted in Ziemssen.

‡ *Amer. Jour. of Med. Sci.*, 1839, quoted in Duhring.





LEUKODERMA.

To face page 675.

the other black; and another member related that he knew a black man who suddenly became quite white.

Sym \* of Edinburgh related the history of a family of seven children who were alternately albino and dark. All but the seventh were living and in good health, and without mental defect. The parents and other relatives were dark.

## LEUKODERMIA.

*Deriv.*—λευκός, white; and δέρμα, the skin.

*Synonyms.*—Vitiligo; Acquired leukasmus; Leukopathia or Achromia; Piebald-skin.

*Definition.*—An acquired disease characterized by the presence of symmetrical and progressive white patches with convex borders surrounded by increased pigmentation.

This is a common disease in tropical countries, but rare in Europe. Thus Garden met with 1 in 36 cases in India, Kaposi placed it at 1 in 500 in Vienna, Erasmus Wilson 1 in 400 in private practice in London, MacCall Anderson 1 in 2500, and my own figures give 1.5 for hospital and 2 per 1000 for private practice.

*Symptoms.*—The affection is entirely one of pigment distribution. In many, and I believe in all, though it is denied by some authors, there is an increased deposition of pigment preceding the white patches. These appear as round or oval, occasionally irregular spots in the darker area, which slowly enlarge, driving the pigment before them, as it were; the part immediately beyond the white area, containing more or less excess of pigment, which is generally of a light brown hue, and offers a sharp contrast to the milk-white area within. The white patches, either from unequal spreading or from coalescence, lose their roundish shape, but the borders are always convex and, as a rule, well defined, but occasionally shade off gradually. The darker color diminishes from the white area outwards, and always merges imperceptibly into the normal skin.

The penis is often more deeply pigmented than other parts.

\* At the Ophthalmological Society of London, reported in the *Lancet* July 11, 1891.

In a few cases the pigmentation is very dark. In one of mine, a butler who had severe jaundice some years before the leukodermia, and some kind of liver disorder immediately preceding it, there was a blaze of white down the center of the face, while the sides were as dark as the skin of a negro.

The patches may be few or numerous, affect any or all regions of the body successively, including the scalp; the hair also nearly always turns white in the affected areas, which contrast with the pigmented parts and give the surface a maplike appearance. The disease takes many years to travel all over the body, and there are generally a few pigmented patches left. Thus in a girl in whom the disease began when she was nine, and was very extensive when I first saw her at ten, the white gradually extended at the expense of the pigment until, at the age of thirty, it was reduced to a few pigmented spots at the elbows. A negro,\* in whom it began at fifteen, was quite white at sixty, except some pigment spots on the cheeks, ears, and forehead.

In a white person, when it has spread over a whole region, the disease may seem to have undergone a spontaneous cure, owing to the absence of contrast, but the normal pigment is very rarely, if ever, restored. The progress is not always regular, and may be arrested for a time.

It is more conspicuous in summer, probably owing to the pigmented part being deeper-colored then, and sometimes this excess permanently disappears, and effects an improvement in appearance by diminishing the contrast between the light and dark part. This progressive form is always fairly symmetrical, often strikingly so, but strictly unilateral cases have been observed, as in the case of a negro shown by Hitchins at Hutchinson's clinic.

There is no alteration in sensation or secretion, nor is there any subjective symptom, though pruritus has occasionally preceded the appearance of the spots.

The thyroid gland has in some cases been enlarged, as in goiter and Graves' disease, while in other cases it appears to be deficient, but never to the extent of myxedema, and I have never heard of its being associated with that disease. In two cases

\* Magruder and Stiles, *Medical Record*, March 10, 1894, p. 294, illustrated.

reported by Neisser and Rille\* respectively, red pin's-head papules appeared on the white patches.

*Etiology.*—Both sexes are equally liable, but it is rare before ten or after thirty. The youngest case that I have met with was a girl four years old. The oldest date of onset was in a gentleman, æt. thirty-nine, who had lived in Mauritius all his life, and his wife also had two small white spots on the same side of the neck, which appeared after coming to England. In another case it commenced at forty-two. It may also be hereditary; a former student of University College Hospital informed me that it existed in his sister, mother, and grandmother.

The disease is certainly more common in the dark races; exposure to the sun is thought to be an exciting influence, and in one of my cases it supervened after sunstroke; extreme cold seems also capable of producing it, and in a case under J. Startin, Jr., it came on in Canada after suffering severely from the cold. In my experience it is more common in neurotic subjects, and Lebrun thinks it is always a ground for inquiring closely for other neuroses. It has developed after violent mental emotion and after a toxic neuritis (Emery), and after tuberculin injections (Du Castel). I have seen associated with it migraine and retinitis pigmentosa, the patient stating that the leukoderma had commenced with defective sight nine years previously. In association with other skin affections it has been seen in connection with morphea, alopecia areata,† with the latter disease fairly often; also with Addison's disease,‡ and Graves' disease, all of them considered to be diseases with a neurotic element in them. Not only achromic patches, but true

\* *Annales de Derm. et de Syph.*, vol. vii. (1896), p. 1382, a report of Vienna Derm. Soc., and reference to Neisser's case.

† According to Thibierge, the alopecia associated with leukoderma is not the same as alopecia areata, and is persistent. While agreeing with the former statement, I do not with the latter, as I have seen the hair grow again repeatedly. In my Atlas case the hair fell off completely after a fright, and the leukoderma developed seven months later. The hair grew again, after some years of treatment, almost all over the scalp.

‡ *Vide* interesting correspondence between Wilks and Gairdner, in which Wilks disputes leukoderma occurring in Addison's disease. *Lancet*, July 28, and August 4, 1900, pp. 246 and 349. Also a case of the combination February 17, 1900, p. 453. Also *Brit. Jour. Derm.*, vol. xiii. (1901), p. 39.

leukodermia may occur after psoriasis, as I have seen in one case of my own. Depressing influences, especially severe illness, such as ague, intermittent fever, scarlatina, and typhoid, have preceded the disease in many instances. It has also been observed after hysterectomy. Cavafy's case following jaundice has already been mentioned. Localized leukodermia has followed compression by an inguinal truss (Hallepeau).

*Pathology.*—There are strong grounds for regarding the disease as due to an angio- or tropho-neurosis, but how this produces it, and why, is not clear. The anatomy of the process has been explained under the pathology of pigmentation in general. S. Marc finds that there are thinning of the rete and other signs of atrophy of the skin and a complete absence of chromatophores.

*Diagnosis.*—This will seldom give much difficulty. Its symmetry, progressiveness, and the combination of excess and deficiency, are characteristic features; in all these points it differs from the congenital white patches which are sometimes to be observed, and called partial albinism.

In India the disease is sometimes mistaken for *maculo-anesthetic*, or *nerve-leprosy*, and indeed it is sometimes called "white leprosy"; it has, however, nothing in common with true lepra, and the pale patches on the skin of the late stage of nerve-leprosy may always be distinguished by the more or less pronounced anesthesia in the affected areas, while the sensibility is never affected in leukodermia.\* When the white areas have spread over a large part of the body, driving the pigment, so to speak, into small islands, the pigmentation becomes the most striking feature, and the affection may be mistaken for *chloasma*; the concave border of the pigmented area should suggest leukodermia, and more attentive observation will then reveal the abnormal whiteness of the surrounding skin, and the history will clear up any remaining doubt.

The whiteness often seen in *morphea* may be distinguished by its being accompanied by a change in the texture of the skin, which is often parchmentlike, though it may be atrophic, and by the other signs of that disease.

\* Barbe relates a case of vitiligo and hysteria following Battey's operation in which there was anesthesia in the white areas, but this was probably due to the hysteria rather than to the leukodermia.

*Prognosis.*—It will be gathered from the above description that the disease is not a very hopeful one, though spontaneous arrest may occur. In course of time improvement may take place, either through the excess of pigmentation fading, or by a whole area becoming white, and so the contrast is lost; this is the probable explanation of reported cures.\* A case is reported by Stelwagon of Philadelphia, in which the whole body surface thus became white, and exposure to the sun had no effect on it.

*Treatment.*—This is highly unsatisfactory; nothing appears to have any controlling influence. Duhring recommends arsenic, but apparently on theoretical grounds; perhaps, if given long enough or in large enough doses, arsenical pigmentation might ensue, which would, at all events, be a better match than that proposed by Brito, who suggested that argyria should be produced.

General tonics are also recommended, and an effort should be made to put the general health of the patient in as vigorous a condition as possible; in this way we may hope to arrest the disease, though we can hardly hope to restore the lost pigment. In consequence of the defective thyroid noticed in some cases I have tried thyroid extract internally, but was unable to see any effect, though it was given for some months. Nöucke, however, in his own case, which began when he was five years old, found that at one point the pigment was spontaneously restored, while the rest remained unaffected.

Ehrmann relates a case where small pigment spots appeared after a time in the leukodermic patches; these Kaposi suggests might have been unperceived lentigines, which the contrasting whiteness of the disease revealed, but this explanation will not hold if leukoderma is produced by the cessation of the pigment supply.

Local treatment is directed towards diminishing the contrast between the light and dark parts. The excess may be attacked in the same way as is recommended in chloasma, while the white part may, where it is worth while, as on the face, be slightly stained with walnut juice or other pigment.

\**E. g.*, Balmanno Squire's case, *Brit. Med. Jour.*, April, 1881.

## CLASS VI.

### ATROPHIÆ—ATROPHIES.

#### ATROPHIA CUTIS, OR ATROPHODERMIA.

TRUE atrophy of the skin may be quantitative or qualitative, *i. e.*, there may be simply diminution in the number and size of its component elements, or an alteration of a degenerative character of those elements.

*Degenerative Atrophy.*—Information is still wanted with regard to the anatomical distinctions of different qualitative atrophies, but there is not necessarily diminution of bulk, and there may be actual increase, as in the later stage of morphea, where there is thickening from increased connective tissue; but at the same time the skin is hardened, yellowish, or whitish and waxy-looking, loses its natural lines, and is sometimes puckered at the borders; in their earliest stage the small white spots are examples of the quantitative form.

*Quantitative Atrophies.*—In this condition, speaking generally, the skin is thin, usually very white, but sometimes pigmented, finely wrinkled, and dry; or, when there is contraction of the part below, as in the last stage of scleroderma, stretched, smooth, and shining.

This atrophy may be idiopathic or symptomatic, and each of these may be diffuse or circumscribed, and these again may be further subdivided. As the terms speak for themselves, all these atrophies may be placed in a tabular form, which will show their relations to each other without further explanation.

#### ATROPHODERMIA PROPRIA.

Atrophoder- mia Idio- pathica	{ Diffusa	{ Progressive, or in large patches	Juvenilis (Xerodermia)	{ Pigmentosa
			Congenitalis	{ Albida.
			Senilis	{ Quantitativa.
	{ Circumscripta (Striæ et Maculæ)	{ Qualitativa.		
		{ Traumatica.		
		{ Non-traumatica.		





XERODERMA PIGMENTOSA. THE DISTRIBUTION OF THE LENTIGIONES IS VERY  
CONSTANT AND EPITHELIOMA IS GROWING ON THE CHIN.

To face page 681.

ATROPHODERMIA PROPRIA (*continued*).

Atrophoderma Symptomata	Neuritica (Glossy skin)	Traumatica. Non-traumatica.
	Morborum cutis	Sclerodermia. Seborrhea. Lupus. Syphilis. Favus, etc.

The symptomatic atrophies due to other skin diseases are described under their primary disease; the others only will be given here.

Two diseases of trophic origin, though not atrophies, are included in this section, viz., perforating ulcer and ainhum.

## XERODERMIA PIGMENTOSA.\*

*Synonyms*.—Atrophoderma pigmentosa (Crocker); Angioma pigmentosum atrophicum (Taylor); Dermatosi Kaposi (Vidal); Liodermia essentialis cum melanosi et telangiectasia (Neisser); Melanosis lenticularis progressiva (Pick)..

This disease is a very rare one, but owing to its striking peculiarities it is easily recognized, and there are over a hundred cases on record, though the disease has only been known since Kaposi † first described it in 1870. The first three cases known in England came under my care in 1883,‡ and two of them are

\* In the first edition of this work I suggested atrophoderma instead of xeroderma as more appropriate and less liable to lead to confusion with mild ichthyosis; but although everyone disliked Kaposi's designation, it is in a fair way to be generally adopted, and dermatology suffers too much from overchristening for me to hold out.

† Hebra. vol. iii. p. 252. Kaposi's Hand Atlas, Plates 367 to 376, form an interesting series. Plates 374 and 375 are noteworthy as they show an early stage on the face and hand. Author's Atlas, Plates LVI. and LXXV., show the disease in its full development and distribution, and are the portraits of the two girls in one family above referred to; the third case, a boy, died in 1895. St. Louis Atlas, Plate XLVII., a case of Du Castel, formerly under Tenneson, is interesting, as it shows epitheliomatous ulceration of the nostrils and lip in a child, while there were only a few freckles and slight atrophy of the skin to represent the other symptoms. Morrow's Atlas, Plate LXV., produces the well-known case in Vidal's valuable monograph.

‡ Recorded in *Med. Chir. Trans.* for 1884, with colored plates and table of thirty-four cases. Since then cases have been published in England,

still alive. The eldest presented all the features in a marked degree. A fourth case, a girl, æt. ten years, of a mild type, came to me in 1897, and a fifth in 1901,\* a girl of eight years, who, although the usual symptoms were only moderately pronounced, had an epitheliomatous † fungating growth between the brows of six weeks' duration.

*Symptoms.*—There are six kinds of lesions present in the great majority of cases. *Lentigines*, or frecklelike pigmentation, is the most striking and constant of these. This pigmentation is generally very densely distributed over the bust and arms. It covers the whole surface and especially the lower part of the neck to just below the clavicles in front, and to the shoulders behind, on the upper limbs, on the extensor aspect. It begins about the insertion of the deltoid and extends to the finger-tips, and is very thick on the forearms, on the flexor side, the boundary slopes down from the back to just above the elbows on the forearms. It is less dense on the ulnar side, but the rest is thickly covered to the wrists, while the palms are free, or nearly so.

On the lower limbs the thighs are rarely affected, and the legs below the knee, both back and front, are but slightly involved compared to the upper limbs.

This distribution is very characteristic and constant from the first, but in some cases it has fallen short of the above limits. Stern and Du Castel record cases in which there were only a few scattered freckles along with epitheliomatous tumor formation. With regard to extension it is not rare for it to go to the third rib, but in Duhring's case it extended to the *mammæ* in front, and to the lumbar region behind, and over the whole scalp, which is seldom affected, but in one of my cases the temporal region was involved.

Ireland, and Scotland. Archambault, in his "Thèse de Bordeaux," 1890, collected sixty cases, and gives a good *résumé* to date. Lesser and Bruhns in 1898 collected eighty-seven cases, and there have been fully twenty cases since. Nearly a score of cases have been recorded in America, seven in one family by Taylor of New York in the *Medical Record*, March 10, 1888.

\* This case had been previously under Pringle.

† Pernet examined the growth, and found epithelioma with horny masses, not growing downwards from the epidermis, but apparently from the hair follicles.

Lentigines have been observed on the back of the foot, on the palms, and under the nails. In a recent case of Kaposi's man, æt. twenty-five, there was freckling, large and small, all over the trunk and buttocks, as well as on the face, upon which there were many carcinomata, but in a few cases there may be only extensive freckling.

The color of the pigmentation varies from a pale yellow fawn to a deep sepia, and the size from a pin's head to irregularly outlined blotches half an inch across, but as time goes on they tend to increase in size, and in one of my cases large blotches developed on the forearms.

The second lesion consists of small white *atrophic spots* interspersed among the pigment spots on the face. They multiply and coalesce into comparatively large cicatricial-looking areas, especially about the orbit, and so diminish the pigmentation in those regions. The skin is white, shining, finely wrinkled, and either smooth or covered with thin white scales. Some contraction ensues, and consequently ectropion is produced. Small atrophic spots are sometimes left by the spontaneous obliteration of telangiectases.

Or on the larger white atrophic areas, the third lesion, *vascular telangiectases* appear. These may be stellate in flat tufts or in small tumors, and their bright crimson color on the white ground makes them conspicuous. Stellate and other striæ may also be seen scattered about amongst the pigment spots both of the face and limbs; they may be few or very numerous, and conspicuous.

*Warts*, some very small, others flatly convex, and many resembling senile warts, are scattered irregularly amongst the pigment, and ultimately may form the starting point for new growths. Thus in one of my cases a warty growth began on a pigment spot in front of the right tragus, it grew to the size of a finger-end, and then began to ulcerate, fungate, and ultimately formed a pedunculated mass as large as a Tangerine orange; its structure was papillomatous (Fig. 33).

Sooner or later there are *superficial ulcerations* with yellowish or greenish crusts scattered about the face, rarely on the limbs, and from these, as well as from the warts, tumors arise which, at first papillomatous, eventually become epitheliomatous and destroy the life of the patient. Some of these ulcerations are

the result of pus inoculation from ocular discharges, conjunctivitis and vascular pterygium being frequently present.

The healing of the ulcers, whether spontaneously or from treatment, produces cicatricial and distorted orifices, such as puckering of the mouth, dilated nostrils, and everted lids; hence, with the scabbed ulcers a resemblance to the disfigurements of lupus, for which the disease has been mistaken.

The development of *tumors* occurs sometimes quite early in the disease, even in cases where the other lesions are slightly developed, but more frequently they only appear at an advanced stage.

The character of these neoplasms is diverse, and they may be quite innocent at first, and become malignant subsequently, or they may be cancerous from the first. This appears to depend a good deal on the mode of origin. The tumors growing from the warts and ulcers are papillary, and instead of fungating may be verrucose. If they are removed or fall off, as they sometimes do,\* they will not recur in the same place; if they are allowed to go on, they become epitheliomatous. Epithelioma may also start directly from one or more of the numerous cicatrices, and while they are at first local, and can be effectually removed, the tendency for others to form increases, until they may be too numerous or extensive to deal with, but internal generalization is rare. The greater frequency with which the tumors and ulcers develop upon the right side of the face is remarkable. Three other minor symptoms remain to be mentioned. There is a *fine pityriasis of the scalp* in many cases, the scales being often brownish, while the red of the lips, and for a short distance inside, is white mottled with red, but the rest of the oral mucous membrane is free as a rule, but the tip of the tongue was once affected like the lips. There are *granular lids*, and the cilia of the lower lid are generally lost, and *vascular pterygium* is often present on the conjunctiva.

*Variations.*—All the cases resemble each other remarkably, but there are some variations, many of which have been mentioned in the description of the symptoms.

\* In my third case a tumor grew in the fingerlike way from the left cheek for an inch and a half without ulceration, became strangulated at the base, and dropped off, leaving a cicatrix. Vidal and Jameson have had similar cases.

The question of *age* remains. Several have commenced in the first year, three and five months (Rotch's cases) \* being the earliest recorded, while there is no limit at the other end. Although the great bulk begin in the second year, there have been a few, like Kaposi's and Hutchinson's, which began as young adults, and Falcao † of Lisbon brought forward a remarkable series of septua- and octogenarians, in whom, though freckled in infancy, no pronounced symptoms occurred until old age. In the oldest, æt. eighty-nine, the development of active symptoms had only commenced five years before. Out of her four children and twelve grandchildren, only one of the latter had xeroderma pigmentosa, which began when two years old, but all had freckles. The chief differences in the aged were that the warty and atrophic elements were conspicuous as compared to the pigmentary and telangiectic elements of childhood.

In a case of Pick's, ‡ a man, æt. twenty-one, there was general lentiginous pigmentation, except on the face, elbows, and knees. The pigmentation was chiefly in the lines of cleavage, and there were no other symptoms, although the pigmentation was said by the patient and his mother to have been there from birth. Probably this case was not really a xeroderma pigmentosa.

*Course.*—The disease usually begins in the second year of life, but there is some discrepancy as to the mode of commencement, the accounts being generally derived from patients' friends. Brayton of Indianapolis saw a case which began in the sixth month of life, with small white atrophic spots upon the face; eleven months later the white spots had increased in size and number and a few brown pigment spots had appeared. There was general erythematous redness of the face and hands six weeks later, and in three months more, in July, disfiguring pigmentation followed, and some of the atrophic spots were a quarter of an inch across. In other cases freckles are said to have been the first lesions. In Rotch's case brown spots appeared on the face and arms at three months, then the telangiectases, and then the white atrophic spots, as shown under

\* T. M. Rotch, *Archives of Pediatrics*, vol. xv. (1898), p. 881.

† *Trans. Third Internat. Cong. of Derm.*, London, 1896, p. 280. Matzenauer has had a female case of sixty-six.

‡ *Melanosis lenticularis*. Neumann's "Festschrift," p. 1002, Plate XXXIII., colored.

"Lentigines" (p. 661); these may develop from telangiectases. This latter is not unlikely, as atrophic scarring may spontaneously develop in and obliterate nevoid telangiectases. In my fourth case the mother said that, when one year old, every fortnight she had attacks of a red rash on the face, followed by cracking and peeling; freckles appeared at eighteen months. Kaposi figures an early stage with erythematous redness of the center of the face and orbits and the back of the hands, with white atrophy interspersed, and a few freckles on the forehead and sides of the face, therefore like Brayton's case at eighteen months old. In Bronson's case when only four months old the mother noticed a disposition to redness across the bridge of the nose and beneath the eyes. After a slight exposure to the sun the face would be swollen and red for several days, and sometimes blisters were formed, once an acute vesicular outbreak occurred, and at five years old Bowen removed an epithelioma from the eyelid.

In Tenneson's and Danseaux's case at nine months old little red spots the size of a sixpence appeared on the cheeks. For several years these spots disappeared in winter and reappeared in the spring. Gradually the redness became persistent, the thinned skin began to crack with serous exudation, then pigment spots appeared on the face and neck, and the skin became parchmentlike and xerodermic.

At all events the freckling, telangiectases, and white atrophy are the earliest and most constant symptoms. The superficial ulcerations do not begin for some years, are probably caused by the eye discharges, and are extended by auto-inoculation.

*Etiology.*—Congenital predisposition is the only known cause, though probably some other factor, as an exciting element, is required.

*Sex.*—The number of males and females is about equal. In the 52 cases collected by Elsenberg, 27 were females and 25 males. It is not hereditary,\* but shows a family prevalence,† and has then a tendency to select one sex. Twenty-six cases occurred in 9 families, and in 7 it affected one sex only. In Ruder's series, in a family of 8 boys and 5 girls, 7 boys were

\* Falcao's case, where a granddaughter was affected, is the only exception I know of.

† Two of Taylor's cases were cousins of three other cases.

affected and the rest of the family were free. Kaposi, Taylor, and myself have had exceptions to this.

*Age.*—Nearly all the cases begin in the first or second year, the youngest being five months, the oldest eighty-nine years (Falcao's),\* but the senile cases are very few. It thus resembles ichthyosis and prurigo in not appearing until some time after birth.

*Hygiene* has not been in fault, as many of the cases were in good circumstances, but

*Season* appears to have some influence, several having begun in spring or summer; and exposure to the sun has been suggested, and in Eulenberg's case proved to be an exciting cause, but it does not account for all cases, such as those commencing with atrophic spots in early infancy.

*Pathology.*—The most feasible explanation is that the disease is an atrophic degeneration of the skin, dependent upon a primary neurosis, to which there is a congenital predisposition. It is noteworthy that all the symptoms may be individually met with in the atrophic changes of the skin in old age; it is their simultaneous presence in the young that is the characteristic of the disease.

Kaposi's views are probably correct, that the alteration begins in the papillary body and epidermis, and spreads from these to the dermis, the pigmentation being due to the atrophy, as is often seen in other atrophies. Perhaps the vessels are the first affected, and besides the above changes, determine the formation of telangiectases by collateral dilatation.

According to Unna the warty growths are formed by the accumulation of irregularly stratified and fissured horny layers on an irregular granular layer, while the prickly layer sends processes into the dermis, which may or may not be connected with the glands.

The tumors are usually described as epitheliomatous, but in my case were distinctly papillomatous and not malignant for many years, when a single epithelioma formed in a cicatrix and was removed without recurrence. Melanotic sarcoma (so

\* Some doubt has been thrown on the diagnosis of Falcao's cases, of which four were octogenarians, but Matzenauer's was sixty-six, and Herxheimer and Hildebrand's seventy, and there are a few others which approach these ages.

called) has been met with; probably it was melano-carcinoma. So many other varieties of new growth have been described as to make one suspect that the personal equation influences the christening.\* Kreibich † examined growths from three cases of Kaposi's, and came to the conclusion that they belonged to medullary cancers, in which the basal layer is preserved, and not to the horny cancers.

**Anatomy.**—I have examined a piece of skin from the upper arm, containing the commencement of a small wart from the eldest girl described above, and a piece from the forearm of the boy containing a small telangiectasis; also the large tumor and a smaller one, and an ulcer which was beginning to fungate, all from the girl.

The results, briefly stated, were: The large tumor was substantially a papilloma, consisting of a large quantity of granulation tissue, with many spindle cells, tunneled with numerous large vessels. Imbedded at intervals amongst this tissue were aggregations of elongated cylinders, some branched; each was bounded by imperfect palisade epithelium, inclosing small epithelial cells, closely but irregularly arranged (Fig. 33).

The smaller tumor had similar granulation tissue, but the papillomatous part consisted of digital processes radiating from a common, very short pedicle and forming a section of a circle bounded by a thin layer of fibrous tissue. The ulcer showed great downgrowth of the interpapillary processes, with enormous proliferation of the rete itself. Comparison of this with the tumors made it probable that this proliferation, when continued, led in the course of the formation of the tumors, to first, separation of these processes from the rest of the rete, perhaps from ulceration at the surface, and then, by independent growth and further separation of the several parts, to the numerous elongated cylinders already described.

It is probable that the angio-myxomas of Taylor of New York were of this character, and also the "épithéliome verruqueux" of Vidal; but Kaposi, in his classical monograph, while figuring a very similar structure, shows also typical epitheliomatous nests, and other good observers have also testified to their being true epitheliomata.

There was no evidence whatever of such structure in my case, and the

\* Taylor speaks of "angio-myxomas," and Vidal of "épithéliome verruqueux." Others describe them as "sarco-carcinomas." Pollitzer examined a tumor removed from my third case in 1890, and described a growth of mixed morbid elements, épithélioma predominating, but also, he says, sarcoma, myxoma, granuloma, cylindroma, etc. *Amer. Jour. Cut. and Ven. Dis.*, vol. x. (1892), p. 133. The patient did not grow a true epithelioma till six years later. See *Brit. Jour. Derm.*, vol. viii. (1896), p. 442. In the same volume are a description and colored plate of the thirteenth American case.

† Kreibich, *Archiv f. Derm.*, etc., vol. lvii. (1901), p. 123.

glands at the base of the pedicle of the larger tumor were healthy, but slightly enlarged. It is, however, highly probable that the epitheliomatous structure would have developed in them eventually, if the tumors had not been removed. An epithelioma from a cicatrix formed some years later.

*In the skin* the papillary layer was atrophied and deprived to a great extent of vessels; the rete over it was thinned, and formed a slightly wavy line. Pigment was imbedded in the cells, and occasionally there was a granule in the corium. The wart showed the usual structure, and there was a scanty infiltration of round cells below it, but the rest of the corium was normal.

These observations agree with those of Neisser, Vidal, and Leloir. In addition to the white atrophied part Neisser found atrophy of the epidermis, absence of pigment, and a regular line of demarcation between the epidermis and the papillary body. Vidal and Leloir found no diseased nerve fibers, but in the middle of the epidermis were nodules of epithelioma, which had, they thought, developed from the cutaneous glands. Okamura\* examined the blood in three of Kaposi's cases, and found that there was an oligocythemia and a rather pronounced leucocytosis.

*Diagnosis.*—The commencement of the disease in early childhood; the formation of frecklelike pigment spots, preceded or not by erythema, the development of white atrophy with telangiectases, superficial ulcers, pigmented warts, and verrucose or fungating tumors, and finally epithelioma, together with the predominance of the lesions in exposed parts, form a history and picture which, viewed as a whole, scarcely admit of error, but mistakes have arisen from paying too exclusive regard to one or other feature.

The *atrophic* stage of some cases of *general sclerodermia* most nearly resembles it, for there may be thinned, white skin, with pigment in parts, telangiectases, and tension, so that a fold cannot be pinched up without difficulty, but the history is very different. Sclerodermia does not begin so early as most cases of this disease, and commences with increase of volume and boardlike hardness and immobility; the pigment, telangiectases, and atrophy are of later development. The pigment is not in frecklelike spots; nor are the telangiectases so large and conspicuous, being only stellate and striate. The position also is paraplegic, and not limited to any special regions. In the early stage the red spots have been mistaken for *measles*, the pigment spots for ordinary

\* *Archiv f. Derm.*, etc., vol. li. (1900), p. 87.

freckles, the telangiectases for *nevi*, while in the later stage the cicatricial aspect and crusts have led to its being treated for *lupus*. All these errors can be avoided by taking all the points into consideration. See also hydroa æstivalis, which has been mistaken for xerodermia pigmentosa.\*

*Prognosis.*—The prognosis is very bad, for although one case which began late did not develop tumors for thirty years, in the majority they appear in childhood, and when they are malignant the patient has but a few years to live, but by following the

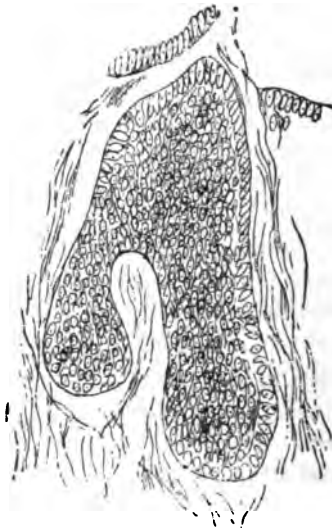


Fig. 33.—A single lobe of the large papillomatous tumor.  $\times 350$ .

treatment laid down the evil day may be staved off for many years. Two of my first three cases are still alive and fairly well, *i. e.*, nineteen years since they first came under observation. Herxheimer's case † was aged seventy, his first malignant growth occurring at the age of thirty. He also adduces cases to show that the early appearance of malignant tumors does not, as Lesser and Bruns aver, show that the disease will run a short and malignant course.

\* Graf's case of xerodermia pigmentosa is evidently hydroa æstivalis. Abs. *Brit. Jour. Derm.*, vol. ix. (1897), p. 293.

† K. Herxheimer and Hildebrand, four new cases. Full abs. *Brit. Jour. Derm.*, vol. xiii. (1901), p. 66.

*Treatment.*—The internal or external means that have yet been tried have not been of any avail to cure the disease. Arsenic, cod-liver oil, iodid of potassium, and various tonics have been given, without any beneficial results.

Much, however, can be done for the alleviation of the troubles consequent upon the ulcers and tumors, and the inflammatory condition of the eyes. Diligently bathing the eyes with boric acid lotion subdued the conjunctivitis, and relieved the eyes in my cases, and by stopping the discharge prevented the formation of fresh sores. The recent ulcers were healed with a diluted ammoniated mercury ointment. The older ones were scraped with a sharp spoon, dressed with a boric acid ointment, and healed satisfactorily. The tumors were excised, and the site healed readily. The improvement in appearance and the comfort afforded to the patients were very striking, and though, no doubt, fresh ulcers would form and tumors develop, if they were dealt with at once, it seems probable that the life of the patient would be prolonged, and perhaps the development of epitheliomata might in some cases be prevented. In the eldest of my cases the disease was quiescent for six years, and then an epithelioma developed in a cicatrix, but was removed in 1896 without recurrence up to 1901. Couillaud \* claims to have obtained great amelioration, even with disappearance of a great part of the pigment, by intramuscular injections of calomel three centigrams, in vaselin and liquid paraffin.

### ATROPHODERMIA ALBIDA.

Here the condition is stationary.

As I only know this affection through the description of Kaposi, who states that he has seen it repeatedly, and designates it as another type of xerodermia, I give it in almost his own words.

*Symptoms.*—The skin from the middle of the thigh to the sole, more rarely from the upper arm to the palm, is strikingly white in places, stretched, and difficult to pick up, with the epidermis extremely thinned, faintly glistening, wrinkled like gold-beater skin, and peeling off in thin, shining flakes. The sensibility is very great on the finger-tips, palm, and sole, on account of the

\* *Annales de Derm.*, etc., vol. ix. (1898), p. 443.

stretching and insufficient epidermis covering, so that the use of the hands and feet is interfered with.

*Diagnosis.*—The condition remains stationary from the earliest childhood, and from this and the above symptoms need not be confused with atrophic sclerodermia.

*Treatment.*—Emollient ointments and plasters are useful to mitigate the dryness and tension of the epidermis, and the soles need protection against pressure in walking.

*Pityriasis alba atrophicans.*—Krösing's case,\* which he compares with Jadassohn's, has some analogies with the above disease of Kaposi. The patient was a man of forty-four. The disease had commenced when he was thirteen as a dry pale, scaly patch on the left ankle; it slowly spread upwards, and reached to the knee in the course of twenty years, and subsequently to the groin. Scaly desquamation had occurred, but there had never been any redness or sign of inflammation. *Pari passu* with the upward spread, the skin, as far up as the knee, had become tense and atrophied, covered with small grayish-white scales and scaly crusts. On the thigh there was fine silver-gray scaling; and the skin was lax; there was a light brownish zone at the border. The right limb had been affected eight years, beginning at the same place and in the same way, and had reached the groin and lower border of glutei.

Jadassohn's case was universal and had developed in six months with marked pruritus. Atrophy of the skin, as in Krösing's case, supervened after ten or fifteen years.

Histologically Krösing found that the disease was not inflammatory, and was due to abnormally rapid cornification of the upper epidermal layers, resulting in an atrophied rete, which spread both vertically and horizontally and led to tension of the skin.

### DIFFUSE IDIOPATHIC ATROPHY.

Anomalous cases of diffuse atrophy have occasionally been reported, such as Wilson's† cases of "General Idiopathic Cutaneous Atrophy," Schwimmer's‡ "Atrophia Cutis Uni-

\* Krösing. *Derm. Zeitschr.*, vol. iii. (1896). p. 57. Jadassohn, *Fourth Germ. Derm. Congr. Trans.*, with stereoscopic plates.

† Wilson. p. 304.

‡ Schwimmer, case 20, p. 189.

versalis," which are probably atrophic general sclerodermia, and Atkinson's \* "Unilateral Idiopathic Cutaneous Atrophy," which was probably morphea. Glax,† Geber,‡ R. W. Taylor,§ and others have reported similar cases. Morphea may undoubtedly produce atrophic thinning of the skin from the first, and I have seen mixed cases in which there was atrophy in one part and parchment induration in another, in the same patient.

**Diffuse idiopathic atrophy of the skin** apparently primary does, however, exist, both congenital and acquired, as in the following case by Buchwald || of Breslau.

The patient was a strong, healthy man, in whom the disease began ten years previously, when he was twenty years old, without apparent cause; it began on the knees and spread mainly upwards, soon reaching its present limits, but the change in the skin was not completed for a year, since which there had been no further alteration, except occasional ulcers on the leg and foot in winter. The whole of both thighs, except in the parts adjacent to the scrotum, were affected; the skin was quite soft and in folds, and when pinched up the folds remained erect; the surface was dry, brownish, and desquamating, with dilated veins, which, when he stood, made the limbs cyanotic. Microscopically there was total atrophy of the papillæ and fat, partial atrophy of the sweat glands and hair-sacs, and the connective tissue was swollen and densely infiltrated with cell nuclei.

Unna¶ has had a very similar case in a man of fifty. He found atrophy of the rete; disappearance of the papillary body,

\* *Richmond and Louisville Medical Journal*, December, 1887.

† *Viertelj. f. Derm. u. Syph.*, Heft i., 1874.

‡ *Allg. Wiener med. Ztg.*, No. 35, 1874.

§ R. W. Taylor, "Localized Idiopathic Atrophy of the Skin," *Amer. Jour. Cut. and Gen.-Ur. Dis.*, April, 1893, and Abs. *Brit. Jour. Derm.*, vol. vi. (1894), p. 31.

|| *Viertelj. f. Derm. u. Syph.*, Heft iv., 1883, with plate.

¶ (Unna) Neumann's "Festschrift," 1900, p. 910. Colored plates, clinical and histological, and a classification as follows:

Diffuse idiopathic atrophies.

(1) Universal—(a) senile; (b) cachectic.

(2) Progressive—Buchwald, type. etc.

(3) Regional—(a) kraurosis; (b) Kaposi's second type of xerodermia.

To which he might have added congenital universal atrophy.

For his circumscribed and secondary atrophies the original paper must be referred to.

elastic tissue, and fibrillary structure of connective tissue; atrophy of all the hair structures and sebaceous glands, while the nerves were intact.\*

Since Buchwald's case was published, Behrend † has reported a case of congenital idiopathic atrophy in an infant, æt. seventeen months, in which the skin of the whole body, except the buttocks, was affected, together with onychogryphosis of the finger-nails. ‡ I have met with a similar case. Touton § has met with a third case, a man, æt. fifty-seven, in which the atrophy was acquired, the lesion occupying the upper and lower extremities, beginning when he was thirty-five years old, and slowly extending upwards towards the trunk. Another case is reported by Pospelow; || the left upper extremity of a man, æt. fifty, was affected. Groen ¶ met with a case of a sailor, æt. forty-seven, in whom there was atrophy of the skin from just below Poupart's ligament to the toes and soles. The skin was thin, transparent, reddish, or cyanotic. No cause was discovered.

Kaposi \*\* and Colombini †† have published cases in which there was diffuse atrophy affecting the whole surface very rapidly, for which they propose the name of *dermatitis atrophicans*. In Colombini's case, a woman, æt. fifty-five, the condition came on after a chill, beginning on the legs, with painless red spots level with the skin and of various sizes. They increased in number and size and invaded the whole of the limbs, and the trunk partially; atrophy followed, the skin becoming shiny, slightly corrugated, finely wrinkled, and hung in folds, and was bluish or

\* Jordan, in relating a case of diffuse senile atrophy and pigmentation of the skin, gives references to many cases. *Monatsh. f. p. Derm.*, vol. xxv. (1897), p. 373.

† Behrend. *Berlin. klin. Wochensch.*, 1885, No. 6, p. 88. Abs. in *Viertelj. f. Derm. u. Syph.*, vol. 1885, p. 346.

‡ Author's Atlas, Plate XC., Fig. 13, showing wrist, hand, and nails—detailed description in the text. Unna disputes the diagnosis of Behrend's case, calling it a hyperkeratosis. Mine was certainly an atrophy.

§ Schwimmer, case 20, p. 189.

|| *Richmond and Louisville Medical Journal*, December, 1887.

¶ *Viertelj. f. Derm. u. Syph.*, Heft i., 1874.

\*\* Kaposi, *Annales de Derm.*, etc., vol. ix. (1898), p. 79.

†† Colombini, "Atrophia Idiopathica," *Monatsh. f. prak. Derm.*, xxviii. (1899), p. 29. Full abs. *Brit. Jour. Derm.*, vol. xi. (1899), p. 258, with references.

dusky-red; the hair was thinner, shorter, and had lost color. The patient felt cold, constant itching (slight), and lost weight and strength.

Neumann \* had a similar case, also from a chill. Bronson's † case was symmetrical on the extremities, but the early stage was unknown. G. P. Elliot had another case exactly like Bronson's, in which a violet zone preceded the atrophy.

Other cases of atrophy which may be referred to are that of Zinsser ‡ in a child of twelve, in spots on the hands and feet; that of Beer,§ which began at ten; of Bécclère and Leredde || of Lion,¶ of Jordan,\*\* a senile case; of Souques and Charcot †† in a girl of twenty-one, which they compared to senile atrophy and called it geromorphism; it began with red lumps at the age of eleven, and left the whole skin in folds and wrinkles. Bechert's,‡‡ a woman of fifty-one, in which there was thinning, wrinkling, dryness, and brown discoloration over the limbs and part of the trunk, which began in her fifteenth year in the hands, when she had to have them very often in cold water. This case favors the view that these atrophies are the result of circulatory disturbance, chiefly stasis, but some cases are considered to be angio-neuroses, and a third view is that of chronic inflammation, as evidenced by the cell infiltration, and shrinking of the elastic and muscular tissues, and Heller §§ regards some as of nevus origin.||||

\* Neumann, *Archiv f. Derm. u. Syph.*, 1898.

† *Jour. Cut. and Ven. Dis.*, vol. xiii. (1895), p. 1; and Elliot's paper, p. 152, illustrated and gives references.

‡ *Archiv f. Derm. u. Syph.*, vol. xxviii. (1894), p. 345. Abs. in *Annales*, vol. v. (1894), p. 1171.

§ Reported in *Annales*, vol. iii., 1892.

|| *Annales*, vol. v. (1894), p. 545.

¶ *Archiv f. Derm. u. Syph.*, vol. xlv. (1898), p. 213.

\*\* *Monatsh. f. Derm.*, etc., vol. xxv. (1897), p. 373.

†† *Nouvelle Iconographie de la Salpêtrière*, May, 1891, p. 169. Abs. in *Annales*, vol. iii. (1892), p. 873.

‡‡ *Archiv f. Derm. u. Syph.*, vol. liii. (1900), p. 35. with colored plate of hand and some references.

§§ Heller's case was a man of forty-five, had been affected all his life with patches of atrophy. Another case, a man of forty, had a patch on the back of right hand for three years. He gives a table of seventeen cases. Neumann's "Festschrift," 1900, p. 251.

|| For further details see Krzystalowicz, *Histology, Monatsh. f. prak. Derm.*, vol. xxxiii. (1901), No. 8.

**Kraurosis**, or shriveling, is an atrophy of the skin of the external genitals in women, first described by Breisky,\* though Weir and Tait had previously recorded cases without appreciating their nature. It is a progressive cutaneous atrophy, limited to the vulva, and occurs chiefly after forty, but sometimes earlier, and in two cases after removal of the uterus, etc. The first microscopic changes are small vascular hyperesthetic areas at the orifice of the vagina, which is narrowed from the skin being thinned and tense. The hair may be shed. The primary changes are inflammatory, but the etiology is unknown. It is often associated with pruritus vulvæ (one-third Ohmann-Dumesnil), and epitheliomatous ulceration has been present in some cases, probably a consequence of the prolonged scratching. Leukoplasia precedes the epithelioma and the kraurosis, according to L. Perrin; and complete extirpation of the affected area is strongly advocated by some authors to prevent the formation of epithelioma.

**Symptomatic Atrophy** may be simple or degenerative, traumatic or pathological. In the simple form, of which pregnancy scars (*lineæ albicantes*) are the most familiar examples, the lesions are in appearance and anatomy the same as in idiopathic striæ. They are especially developed during pregnancy, and at first are bluish-red from hemorrhage, very itchy, and get white eventually. Any other cause of distention, such as ascites, ovarian or other tumor, may produce them in the abdomen, and lactation has the same effect in the breasts. I have also seen them on the shoulders and elsewhere from large symmetrical lipomata, and over the lower ribs and back from violent coughing. A similar kind of lesion, though usually classed with ordinary scars, is the atrophy from external pressure, such as is produced by corns, favus-crusts, etc., and the depressions remaining after absorption of inflammatory or other infiltrations of the corium, which ensue in many syphilitic lesions,† lupus,

\* Breisky, *Zeitschrift f. Helkunde, Prag.*, March 15, 1885. See also a paper by Reed, *N. Y. Med. Jour.*, September 29, 1894, p. 385, with histology by H. W. Bettmann, micro-photos. Weiss on Pathology; Neumann's "Festschrift," 1900, p. 944; L. Perrin, "Leucoplasie et ses rapports avec le Kraurosis Vulvæ," *Annales de Derm.*, vol. ii. (1901), p. 21.

† Under Auspitz's name of liodermia, Finger describes an extreme instance in *Viertelj. f. Derm. u. Syph.*, vol. ix. (1882), p. 21, with colored plate.

leprosy, and lichen planus. These scarlike marks, if of small size, gradually disappear or grow less distinct, from the contraction due to the natural elasticity of the skin.

**Degenerative Symptomatic Atrophy.** Here, fatty, hyaline, and lardaceous changes occur in the same way as described in idiopathic senile, degenerative atrophy, and are the consequence of chronic dermatitis, such as eczema, pemphigus foliaceus, pityriasis rubra, etc., perhaps by its setting up an endarteritis, which is always present to a greater or less extent in these cases, and so diminishing nutrition.

*Treatment* for all these forms of atrophy is unavailing.

## ATROPHIA CUTIS SENILIS.

*Synonym.*—Atrophodermia senilis.

The condition is usually associated with general signs of senile degeneration. It may affect the whole skin, its appendages, and subcutaneous tissues, may be simple or quantitative, degenerative or qualitative, or more often both.

The skin is more or less in folds from loss of fat, less elastic, slightly shrunken, wrinkled, and from atrophy of the glands is dry, sometimes with fine branny desquamation; it feels thin, and is transparent and shining. The hair is lanugo-like or absent. Pruritus, which may be severe and persistent, is sometimes present, but the reaction to scratching is slight or absent. In a case of Harrison's of Bristol a condition like white lichen planus was produced. It may be paler, but is more often darker than normal, sometimes even a tawny brown, or it may take the form of freckles,\* often very large and dark. Various new growths are liable to arise. The arms, trunk, and neck may be studded with numerous flat warts, deeply pigmented, of a dirty brown or black color, and if the horny covering be picked off, hypertrophied papillæ are exposed, or the dilated orifice of a sebaceous gland which was plugged with accumulated epidermis. Some pendulous sacs of skin, the contained fibromata having atrophied, are frequent on the neck and

\*See under Eczema a case of freckles following it; also Hutchinson on "Tissue dotage," *Archives*, vol. iii. p. 315.

trunk; and scattered about are bright crimson, very slightly raised spots, consisting of tufts of dilated vessels. Soft mole-like growths may also be present, and some one or other of these ill-nourished structures often take on a malignant growth.

Epithelioma and rodent ulcer are especially the new growths of old age, but wens, senile lupus, senile scrofula, and the small fibromata alluded to, are also not infrequent. Another condition is the presence of flat yellow discs about an eighth of an inch in diameter, due to hypertrophy of the sebaceous glands (see that disease); they occur chiefly on the forehead and other parts of the face.

**Anatomy.**—Neumann found the epidermis thinned and forming a wavy line over the shrunken papillary layer. The corium generally was thinned and its connective tissue corpuscles fewer and smaller, with pigment granules among the fiber bundles; the vessels were in some cases destroyed, in others enlarged, and contained pigment masses. The papilla of the hair was often shrunken, and the cells of the outer root-sheath cornified and sometimes bulging out the follicle; many of the sebaceous glands were enlarged, at least in some of their acini, which were filled with crumbling epidermic masses; the fat cells were here absent, leaving the connective tissue meshes empty.

**Degenerative Atrophy.** In this the connective tissue fibers lose their definition from being clouded with granules, and become changed into more or less homogeneous tough or brittle masses; these changes are known as granular or vitreous degeneration, and some speak of lardaceous and fatty changes.

Colloid degeneration of the corium is described along with new growths.

### **STRIÆ ET MACULÆ ATROPHICÆ.**

*Synonym.*—Atrophodermia striata et maculata.

*Symptoms.*—This condition may be idiopathic or symptomatic. The idiopathic form occurs as streaks and spots; the "streaks" are pearly or bluish-white, glistening scarlike lines from one to several inches long and a quarter of an inch or more wide. They lie in two or more parallel lines, inclined at various angles to the longitudinal axis of the body, following the natural lines

of cleavage of the skin, and are situated chiefly about the buttocks, the anterior border of the ilium, the trochanters and thighs, rarely on the neck, trunk, or arms. They are slightly depressed below the surface, and the skin is evidently thinned there.

Wilson has described cases of linear atrophy which he considered due to defective nerve supply, but one of the cases followed a blow, and another was the consequence of violent sneezing, so that the possibility of a traumatic origin cannot be quite excluded. The lesions were situated in the course of the supra-orbital nerve, beginning by a faint white line with slightly red borders, the white part being widened and deepened; sensibility was lost, and the skin became dry. Subsequently the sides of the sulcus were drawn together, leaving "a deep linear groove, like a sword-cut." Another case \* bears out his contention with greater probability. A young lady was turned out half-dressed on a cold night, as the house was on fire, and straight parallel lines of atrophy developed on the forearm. It is very probable that they are related to, perhaps only variants of, supra-orbital sclerodermia, which is often associated with atrophy.

**Maculæ Atrophicæ.** The "spots" are less common; they are from a lentil to half a crown in size, also shiny white or bluish, and level with the skin or slightly depressed, finely wrinkled, usually isolated, and are seen mostly on the trunk and neck. Both lesions make their appearance unnoticed by the patient, as a rule, and give rise to no inconvenience, but they never go away entirely, though they may get less obvious from the natural elasticity of the healthy skin drawing the sides together. There is much reason to believe that this is a secondary condition. Liveing observed a case of the macular variety, where the spots were in all stages, and found that the first was characterized by slight redness and by well-marked hypertrophy rather than atrophy, for the spots were raised above the skin, and were hard and fibrous. This was soon followed by the second characteristic white stage, and in some of them by a third, consisting of a shrinking process, which drew the healthy surrounding tissues together, and the spots became barely perceptible. Taylor of New York and Tilbury Fox also mention hyperemia

\* *Jour. Cut. Med.*, July, 1867.

as an antecedent condition. Jadassohn \* described a case where the spots varied from a lentil to a shilling all over the extensor aspect of the limbs in a young woman; they were shown to have followed light red, slightly raised papules. In Sherwell's case † the spots were all small, situated on the backs of the hands, feet, and all up the leg, below the knee, and on the upper limbs also. They were said to have begun with red itching papules which became white and left these pits. In Pospelow's case ‡ the atrophic spots occurred in a patient with defective circulation following on petechiæ; microscopically he found inflammation of the vessel walls and absence of elastic tissue; while considering it of the same nature as Jadassohn's case he proposed to name it *purpura atrophicans*. Heuss § records a case of the Jadassohn type. He found perivascular infiltration in the early stage, and in the later almost complete disappearance of the elastin in the atrophic area.

The vitiligo of Bateman, which differs from that of Willan, appears to belong here, but the tubercles are white from the beginning; he describes it thus: "It is characterized by the appearance of smooth, white, shining tubercles, which rise on the skin, sometimes in particular parts, as about the ears, neck, and face, and sometimes over nearly the whole body, intermixing with shining papulæ. They vary much in their course and progress; in some cases they reach their full size in the course

\* "Ueber eine eigenartige Form von 'Atrophia Maculosa Cutis,'" *Verhandl. der deutsch. dermat. Gesellsch. Congress*, 1891. He discusses many other reported cases.

† *Amer. Jour. Cut. and Gen.-Urin. Dis.*, vol. xii (1894), p. 499.

‡ Shown at the Derm. Soc., Moscow, in March, 1899.

§ *Monatsh. f. prak. Derm.*, vol. xxxii. (1901), Nos. 1 and 2, with colored histological plate and many references. Abs *Brit. Jour. Derm.*, vol. xlii. (1901), p. 198. He classifies the cases as follows:

1. *Primary or idiopathic*. Atrophia maculosa cutis, including Thibierge's, Jadassohn's, Heuss', Galewski's, and Mibelli's, perhaps also Besnier's cases.

2. Secondary forms in connection with:

a. Vascular changes—as in Pospelow's, Nikolsky's, and Hallopeau's cases.

β. Tumors, especially of connective tissue nature. De Amicis' and Plonsky's cases.

γ. Followed by growths, especially keloids—Jadassohn, Schwimmer, Schweninger and Buzzi cases.

of a week (attaining to the magnitude of a large wart), and then begin to subside, becoming level with the cuticle in about ten days. In other instances they advance less rapidly, and the elevation which they acquire is less considerable—in fact, they are less distinctly tubercular. But in these cases they are more prominent, and, as they gradually subside to the level of the surface, they creep along in one direction, as, for example, across the face or along the limbs, checkering the whole superficies with ‘a veal-skin’ appearance. All the hairs drop out where the disease passes, and never sprout again; a smooth, shining surface, as if polished, being left, and the morbid whiteness remaining through life. The eruption never goes on to ulceration.”

Tilbury Fox \* records a case which he considers referable to Bateman’s vitiligo, but the tubercles were slower in their evolution.

*Etiology.*—Both striæ and maculæ are seen in adults of both sexes, and at all ages, but Schultze found that thirty-six per cent. were women who had never borne children, and only six per cent. were men, and they were more frequent in tall men. This applies only to the striæ, which he considered due to the stretching of the skin during the expansion of the pelvis and growth of the limbs. Morris showed a case at the Dermatological Society of a girl of twelve, in whom there were long wide streaks across the thighs, apparently due to rapid growth, as she had had no illness. The cases of striæ which are sometimes observed in convalescence from typhoid fever in the limbs of children and young adults are chiefly across the ankles, and presumably due to the pressure of the bedclothes producing overextension, when the nutrition of the skin is damaged by the fever. When, as in Duckworth’s case,† they are across the thighs, they are in some cases probably due to the rapid growth often observed under such circumstances. In Shepherd’s case‡ in addition to broad stripes across and above the knee there were atrophic spots, which was the earliest lesion, and the striæ were formed by their enlargement and coalescence. These atrophies

\* *Lancet*, June 28, 1879.

† Duckworth, after relating his own case, gives many references in *Brit Jour. Derm.*, December, 1893, vol. v.

‡ *Amer. Jour. Cut. Dis.*, vol. ix. (1891), p. 59.

occur in the most severe adynamic cases. Osler has observed similar striæ on the arms and legs after scarlet fever. Examples of what may be called distention striæ may be seen on the thorax from pneumothorax, rapid development of fat,\* either on the trunk or limbs, rapid growth of a limb either ordinary or extraordinary, as in some cases of diseased bone attended with elongation, the distention of pregnancy, or ascites, or flatulence. In two of Hanot's cases lymphatic varices in association with ascites left striæ atrophicæ when the varicosity subsided. After tapping Féré and Schmidt found that in fifteen per cent. of epileptics there were striæ in the lumbo-sacral region, attributed to disproportionate length of the spinal column in that region.

In Ohmann-Dumesnil's † case, a girl, when two and a half years old, had a deep burn on the radial side of the wrist close to the root of the thumb; when seven years old the whole limb was, to some extent, wasted, and on the arm and forearm were five atrophic, scarlike, linear striæ three-eighths of an inch wide, and lying over the brachial and radial nerves. There was also slight hyperesthesia. These lesions were clearly neurotic. No satisfactory explanation of the maculæ has been afforded. Wilson's cases and the antecedent hyperemia of some others favor to some extent a tropho-neurotic origin, in some instances at all events, a view Schwimmer strongly advocates.

**Anatomy.**—Langer and Kaposi have found atrophy of the epidermis, obliteration of the papillæ, separation of the connective tissue fibers, and diminution of the glands, vessels, hair-follicles, and fat lobules, partly from atrophy, partly from separation.

In Plate XV. of the International Atlas Schweninger and Buzzi describe a case of a rare affection, which they designate **Multiple, Benign, Tumorlike, New Growths**. It has also been observed by M. Morris, Colcott Fox, and Van Hoorn.

Clinically, the lesions are soft, round, or oval projections, from a lentil to a bean in size, more or less white, with a slight bluish or slate color in some of them. Most of them are bladderlike, and can be pressed into the skin by the finger, pro-

\* R. W. Taylor, in *N. Y. Med. Jour.*, January 2, 1886, published with colored lithograph a remarkable instance of striæ from obesity and flatulence.

† *Brit. Jour. Derm.*, vol. ii. (1890), p. 246.

jecting again immediately like a hernia. The larger ones are flattened and slightly puckered, and harder than the smaller, from which they develop. They undergo spontaneous involution, and leave only flaccid, loose, foveated scars. They appear very gradually and without sensory symptoms on the trunk, shoulders, and thighs, and ultimately become numerous, as none disappear entirely, and others keep forming. Three out of the four cases were women. One had had syphilis, and she stated that the lesions appeared on a secondary eruption, which did not ulcerate; but in the other cases there was no evidence of syphilis.

*Microscopically*, Buzzi found that they were not true tumors, but the projections were produced by the skin alone, in which the elastic fibers were quite absent, with slight increase of them at the border of the pseudo-tumor. Around the vessels of the superficial horizontal network and the skin appendages there were round-cell accumulations and evidence of proliferation of the compound elements. The passive retraction of the elastic tissue was the primary change, as it was constant in the smallest lesions, which appear therefore to belong more to atrophy than to new growth, resembling somewhat maculæ atrophicæ, but forming projections instead of depressions.

I have seen very similar lesions associated with fibromata of the ordinary form, when some of them have been absorbed. It is probable that they are the last phase of more than one pathological process.

From the nature of the lesions treatment has not been, nor is likely to be, of any avail.

### GLOSSY SKIN.\*

*Synonym.*—Atrophoderma neuritica.

*Symptoms.*—Under this title Paget, Weir Mitchell, and others have described an atrophy of the skin in the area of a nerve affected by disease or injury. It chiefly attacks the extremities, perhaps only one or two fingers; the skin of the affected part

\* *Literature.*—Paget, "Some Forms of Local Paralysis," *Medical Times and Gazette* March 24, 1864. Weir Mitchell, "Injuries of Nerves and their Consequences," (Philadelphia, 1872). Moorhouse and Keen, "Gun-shot Wounds and Other Injuries of the Nerves" (Philadelphia, 1864),

becomes very dry, smooth, and glossy, like a thin scar; the fingers are tapering, hairless, and almost void of wrinkles, and the color is pink or deep red, not unlike chilblains, or mottled with patches of red and white, and the skin is easily inflamed, excoriated, and fissured. A severe and persistent burning pain (causalgia) precedes and accompanies this condition, and is very characteristic. The appendages of the skin share in these defects, hence the dryness, loss of hair, and changes in the nails, which Mitchell and Moorhouse and Keen regard as in themselves quite distinctive. The nail is curved both longitudinally and transversely, and there is sometimes thickening of the cutis beneath the free end. In some cases the skin of the third phalanx retracts, partially exposing the sensitive matrix; at the free end the nail is also more separated than usual from the cutis, which is seen as a notched border through the nail. In the toes, with painful and recurring ulceration at the angles, there is less deformity. Instead of dryness the sweat is often increased considerably, is intensely acid, and sometimes offensive.

*Etiology.*—It follows such injuries to nerves as do not completely sever them, or it may arise from a neuritis being set up in a wound. It has also been found as a complication of gout, rheumatism, non-tuberculated leprosy, and following shingles, and in a few cases of chronic myelitis, in one of which there was associated muscular atrophy.

*Pathology.*—The disease is undoubtedly dependent upon inflammation of the nerve supplying the affected area, whether the neuritis is set up by disease or injury. In the cases associated with disease of the cord the condition of the nerves was not examined. Whether the neuritis is interstitial or parenchymatous, or both, has not been investigated. In a case reported by A. E. Watson \* of apparently spontaneous origin, the "causalgia" was very acute, lasted about twenty-four hours, and shifted from one hand to the other; the right hand suffered two attacks. The fingers were white and shiny during the attacks. The history suggests that the lesion was in the periphery of the nerve.

*Treatment.*—The condition tends to get well spontaneously, and only requires, therefore, protection from cold and other

\* *Lancet*, vol. i. (1890), p. 647.

injurious influences. The causalgia is generally best relieved by the constant application of cold water, but in Watson's case this aggravated the suffering, and immersion in very hot water produced immediate removal of the pain.

### PERFORATING ULCER OF THE FOOT.

This somewhat rare disease comes under the care of the general surgeon rather than the dermatologist, and requires, therefore, only a brief notice here. Its neurotic origin has been well brought out in a paper by Savory \* and Butlin, whose observations have been confirmed and extended by subsequent observers.

The exciting cause is pressure or injury of some kind to a foot in which the protecting nerve influence is in abeyance, either from damage to the nerve center, as in locomotor ataxy, which is the most common cause; to the nerve trunk (the posterior tibial), as in syphilis, leprosy, or other cause of neuritis; or to the peripheral terminations of the nerve, as in peripheral neuritis.

Gasquel † collected 91 cases, 84 of which were in males. The age was stated in 79: 3 were under twenty, 4 between twenty and thirty, 22 between thirty and forty, 31 between forty and fifty, and 19 were over fifty. In 69 cases there was a central nervous lesion, 8 times there was peripheral nerve lesion, and 14 were diabetic. Thirty-two had tabes, 17 general paralysis, 8 symptoms of alcoholism, 4 traumatic disease of the cord; 8 had various cord lesions, 1 being Friedreich's disease.

*Symptoms.*—Although the foot is the usual seat of the so-called ulcers, Terrillon ‡ showed a case to the Société de Chirurgie where the hand was affected at the junction of the ring finger to the palm, and Ménétrier § records several ulcers on the palmar surface in a syphilitic whose hands were con-

\* *Med. Chir. Trans.*, vol. lxii. (1879), p. 373, with colored plate and microscopic drawings of nerves and full bibliography. For some recent references see also Tomaszewski in *Munch. med. Wochensch.*, No. 20, May 20, 1902, p. 843.

† "Thèse de Paris," July, 1890.

‡ Quoted in *Lancet*, April 11, 1885, p. 676.

§ *Annales de Derm.*, etc., vol. vii. (1886), p. 30.

stantly wet and dry at his work.\* The most common position is where there is most pressure, such as over the metatarso-phalangeal joint of the great or little toe, or the pulp of the great toe, always on the plantar surface. There may be more than one on the same foot, and both feet may be affected. It is more correctly a sinus than an ulcer, and often begins by suppuration under a corn, burrowing into the soft tissues, and when the horny covering is thrown off a sinus is exposed, leading down to the bare bone; sometimes the process is more acute, and a slough is rapidly formed, but the result is the same. As the pressure from walking is continued, the epidermis round the ulcer becomes much thickened, and forms a thick horny collar round the sinus; occasionally there are granulations round the orifice. It is very indolent, generally painless, even on pressure, anesthesia of the neighborhood being the rule; but occasionally there is hyperesthesia, and there is a tendency to abundant and fetid perspirations of the affected foot.

The only affection from which it requires to be distinguished is an ordinary *suppurating corn*, unconnected with damage to the nerve of supply; this will be distinctly painful, the skin round will be very sensitive, and although there may be a sinus leading down to necrosed bone, treatment on ordinary surgical principles will always be satisfactory. In the true perforating ulcer the reverse is the case, although the sinus may be induced to heal under very prolonged rest. The bucket-leg is the most practicable way of resting the foot, without absolutely laying the patient up, but it is sure to break out again as soon as he begins to walk. Amputation of more or less of the foot by Chopart's, Syme's, or Pirogoff's operation is recommended in most surgical works, but the cause being unremoved, a fresh ulcer is very apt to form in the stump. The treatment suggested by Treves seems rational, and is successful in most cases. The thickened epidermis round the sinus was pared down completely, after softening by repeated poultices, and the sinus filled up with a cream of salicylic acid, glycerin, and ten minims of carbolic acid to the ounce, and after healing, which soon occurred, a

\* Fitch is quoted by Montgomery of California, as having observed "a perforating ulcer of the wrist, which bored clear through the carpus," in an infant of six months old, one of a leper family.

Instances of spontaneous cure in a leper family. D. W. Montgomery, *Med. Rec.*, April 10, 1902.

thick perforated felt pad was worn over the sore, the hole corresponding with the former sinus, and care was taken, by attention to the construction of the stockings and boots, to prevent fresh injury. Beaven Rake, who had a large number to treat in the Trinidad Leper Asylum, recommends that stretching of the sciatic or posterior tibial nerve, free incision of the ulcer, and opening up the sinus, should be tried before amputation is resorted to. Chipault reported five cases of trophic perforating ulcers successfully treated by stretching the plantar nerves. In some cases it might also be desirable to stretch the musculo-cutaneous and external saphenous nerves. The operation should be at some distance from the ulcer to avoid infection of the incision from it.

### MORVAN'S DISEASE.\*

*Synonyms.*—Analgesic paralysis with whitlow; Syringomyelia; *Fr.*, Panaris analgésique.

This is a rare disease first described by Morvan of Lannilis in Brittany in 1883. It is a trophic affection from disease of the spinal cord which only requires brief mention here, although its interest to dermatologists has been considerably increased since Zambaco Pacha put forward the theory that it is really an atavistic and attenuated form of leprosy.

*Symptoms.*—The first symptom is pain in the extremities, fol-

\* *Literature.*—Five memoirs by Morvan in *Gazette Hebdomadaire*, 1881-1889, and by Prouff, *loc. cit.*, 1887. Lecture by Charcot, *Progr. Médical*, March, 1890; translated *Phil. Med. Bulletin*, Nos. 10 and 11, 1890, from which the above description is chiefly taken. In *Brit. Jour. Derm.*, vol. ix. (1897), p. 207, is an abs. of P. M. on one of the cases in Charcot's lecture. See also "Les altérations cutanées et la syringomyélie," G. Thibierge, *Ann. de Derm. et de Syph.* Bruhl's "Contribution à l'étude de la syringomyélie," Paris, 1890, gives a very complete account. Also a case by Hughlings Jackson, *Lancet*, February 20, 1892. In Part VI, "Internat. Atlas," with Plate XVIII., L. Jaquet gives an account of a case of syringomyelia, with extensive trophic ulcerations on the head, neck and shoulder. "Morvan's Dis.," Hogarth Pringle, *Brit. Jour. Derm.*, vol. v., July, 1893, p. 193. Cagney on "Syringomyelia and Leprosy"—a good *résumé* of the then known facts, *Trans. of the Derm. Soc. Great. Brit. and Ireland*, vol. i. (1895), p. 53. "Morvan's Dis., Syringomyelia and Leprosy," Jeanselme, *La Presse Médicale*, No. 62 (1897), p. 44. Good abs. *Brit. Jour. Derm.*, vol. ix. (1897), p. 454, one of the cases.

lowed by analgesia, first of one side, then of the other, and then the formation of a succession of whitlows, which are usually painless, though the early ones are sometimes painful. The whitlows are attended with, or are the result of, necrosis of the phalanges, which are cast off with much consequent deformity and crippling. There are usually only from two to six of these whitlows, but one of Morvan's cases had nine. They affect the upper extremities chiefly, but the toes have been involved in some cases.

They may be distributed over many years, sometimes with long intervals of freedom. In Prouff's case, the earliest and longest on record, the duration was forty years (from the age of twelve to fifty-two), and there were twenty years between the first four whitlows on the right hand and the last four on the left. A patient of mine, a woman, æt. fifty-one, had suffered from whitlows on the right index and left thumb for thirty-five years. The first appeared on her right middle finger, but all the rest on the above-mentioned digits; she was scarcely ever quite free; the longest interval she remembered was two months. They were painful, and there was some deformity of the terminal phalanges. There were no other symptoms of Morvan's disease.

There may be other trophic lesions of the skin, of the forearms and hands, viz.: fissures, shallow or deep, ulcers in the natural folds of the skin, almost amounting to the perforating ulcer, extending with suppuration to the tendinous sheaths (Charcot). Patches of bullæ and pustules sometimes are present. Further vaso-motor symptoms occur chiefly of the hands. Pospelow \* had a case with Raynaud's disease and concomitant sclerodactylic erythromelalgia and edema of the hands and forearms, irregular herpes zoster gangrenosus and analgesic whitlows, in association with spinal glioma. A dusky color only with lowering of temperature is observed more frequently than a typical Raynaud.

Other trophic symptoms are muscular atrophy and paresis of the forearm and hand muscles, and contraction of the fingers, with "*main en griffe*" with impaired electrical contractility. The paralysis seldom extends beyond the elbow; Morvan said

\* In "*Festschrift*" of F. J. Pick in 1898, illustrated. Reviewed in *Brit. Jour. Derm.*, vol. x. (1898), p. 418.

it never did. Morvan stated there was complete analgesia and anesthesia, affecting the sense of pain, touch, and temperature, while in typical syringomyelia tactile sensation is preserved, that of pain is absent, and the sensations of heat and cold are more or less lost. But this is only true of some cases, since Joffroy, with and without Achard, and Marinesco have found syringomyelia at two autopsies of typical cases of the disease of Morvan, and in spite of the latter's protests there is now a conviction that this condition is only a clinical variety of syringomyelia, in which the cavities are often produced by the absorption of gliomata, the central and posterior portions of the cord being the parts chiefly involved.

Most cases occur between twenty and fifty, but twelve and sixty years are the extremes observed. It is more common in men than women. Hanot's case started definitely from a chill, the man having continued his work after having fallen into a river. A few have started from injury. In most the cause is untraceable.

Charcot gives the diagnosis of Morvan's disease from sclerodermia of the hand and anesthetic leprous deformity of the hand, but the other symptoms of those maladies would be present, so that mistakes could seldom arise except from paying too exclusive attention to the hand lesions. Rendu \* met with a case from Tongking with the special dissociation of sensory symptoms of syringomyelia, which Charcot, Leloir, and Hallopeau considered to be anesthetic leprosy, the patient having thickening of the ulnar nerve and paralysis of the orbiculares palpebrarum, as well as trophic troubles of the lower limbs.

There are, therefore, some cases in which the diagnosis is difficult, and it is now established that syringomyelia with its characteristic spinal cavities may occur in the course of leprosy, as may also analgesic whitlows and mutilation, anesthesia, vaso-motor, and trophic disturbances. Zambaco, who has had long experience of leprosy in Constantinople, struck by these resemblances, went to Brittany, where Morvan observed his cases, and came to the conclusion that leprosy was not dead there, and that syringomyelia and Morvan's disease were only forms of leprosy modified by climate, hygiene, and environ-

\* Jeanselme records a case of Morvan's disease in a leper, *loc. cit.*, *Fr. Soc. Derm., Ann. de Derm. et de Syph.*, vol. ii. (1891) p. 409.

ment. This startling theory was considerably weakened by his further contention that, "Sclerodermia, sclerodactylia, morphea, ainhum, are all modified forms of leprosy"; and further, that cases of leprosy have been included under Raynaud's disease and the progressive muscular atrophy of Duchenne. Zambaco has found a few supporters, such as Falcao of Lisbon and Coli of Columbia, but most people consider that the Pacha has proved too much, and that similarity of symptoms and even of pathological changes does not necessarily imply the same pathogenic agent.

The prognosis is not good, and treatment can only be palliative.

### AINHUM.\*

(The Nagos native name, meaning "to saw.")

*Definition.*—An endemic disease, in which spontaneous amputation of the little toe occurs.

This disease occurs only in negroes and Hindoos and other dark-skinned races.

It is not uncommon on the Gold Coast and other parts of the west coast of Africa, and in Brazil, and is also to be met with in the West Indies, West Virginia, North Carolina, India, and the islands of Polynesia, Nossi-Bé, Réunion, and Madagascar. It was first described by Clarke as "a dry gangrene of the little toe among the natives of the Gold Coast," and independently years later by Da Silva Lima of Bahia, who collected fifty cases.

\* *Literature.*—Clarke, *Trans. Epidem. Soc.*, 1860, vol. i. p. 105. "On Ainhum," by Da Silva Lima, *Amer. Arch. of Derm.*, 1880, vol. vi. p. 367—one of the best accounts of the disease. See also Hirsch's "Geographical and Historical Pathology," *New Sydenham Soc.*, 1886, vol. iii. p. 728, containing bibliography. Duhring, *Amer. Jour. Med. Sci.*, January, 1884, with microscopical examination by H. Wile. "The Histology of Ainhum," by C. H. Eyles, *Lancet*, September 25, 1886. *Path. Soc. Trans.*, vols. xviii., xix., and xxxii. (1881), p. 302; and Fox and Farquhar's "Endemic Skin Diseases of India," etc., App. vii. p. 114. "Ainhum," by Walter Pyle of Washington, *Medical News*, January 26, 1895, gives a full bibliography. "Contribution nouvelle à l'étude de la question de l'Ainhum," par H. de Brun, de Beyrouth, *Annales de Derm., etc.*, vol. x. (1899), p. 325, with skiagram.

*Symptoms.*—The disease is a purely local one, and begins as a semicircular furrow in the digito-plantar fold of the fifth toe, starting from the inner and under surface, without inflammatory or subjective symptoms, except perhaps itching, preceding or accompanying it; nor is there at first any breach of surface or interference with the movements or sensibility. The furrow extends very slowly in depth, and towards the upper surface, eventually completing the circle and forming a groove all round, as if from constriction by a ligature, and with the same result, the portion beyond the constriction swelling up to two or three times the normal size and becoming separated from the rest, with the top part rotated outwards. While the constriction deepens the tissues atrophy beneath, so that the toe is like a roundish tumor with a narrow, flexible pedicle, which at this stage is likely to ulcerate, with fetid discharge and severe pain, until the now useless member is removed, either by the occurrence of gangrene, an accidental wrench, or being cut off by the surgeon or the patient himself, which he can easily do with little pain or bleeding. All this process is very slow, taking from four to ten years for the toe to be ready for removal, but fifteen (Moreira) and fifty (Evans \*) have been recorded.

Mr. Johnson Smith was kind enough to show me at the Seamen's Hospital, Greenwich, the only living case that had, up to then, visited England. The patient was a stalwart negro sailor, æt. thirty-eight, from Jamaica, and he had noticed the disease for seven months. Unlike most cases, pain was the first symptom. This had persisted ever since, slight in the daytime, but severe at night, quite preventing sleep, and he therefore wished the toe removed. There was no ulceration; but in the plantar fold, opposite the metatarso-phalangeal joint, the epidermis was much thickened, and on the inner side was a sulcus like a deep cut. On the upper surface the furrow was shallow, but broader, and on the outer side what appeared to be a corn leveled up the sulcus. It is noteworthy that in Shepherd's case the disease began as a small pimple on the outer side of the toe. Not infrequently the fifth or the fourth toe on the other foot, or the fourth and fifth of the same foot, or even the great toe (Crawford and Cooper), are also attacked simultaneously or successively, and Béranger-Ferraud has seen all the toes amputated,

\* Evans, *Trans. South Carolina Med. Assoc.*, 1897, p. 93.

and in one case all the toes of the right foot were lost and the disease began in the middle third of the leg. The metatarso-phalangeal joint has been affected in a few cases, and Eyles once saw it affecting a finger, but nine times out of ten it is confined to one or both little toes.

*Etiology.*—It occurs chiefly in adults who are young or in the prime of life (thirty to thirty-five), rarely in old age, and hardly ever under fifteen years; Le Brun's case was six years old. It affects the male sex much more than the female, and is said to be sometimes hereditary (Da Silva Lima, Duhring, Dupouy), but this has not been proved and is *a priori* improbable. These facts, and its restriction to the dark races \* and to certain localities, are all we know of the causation of the disease. Some authors ascribe it to injuries resulting from the negroes walking barefooted. This is disputed, however, because freed negroes who wear shoes are also affected, but it is notorious that they take them off whenever they can. Their flat-footedness is supposed to explain the fact that the fourth and fifth toes are the ones affected. It has also been attributed to wearing rings on the fifth toe, but it occurs in races which do not wear rings.

*Pathology.*—Nothing is known of its pathology; but its histology has been many times investigated. According to Eyles, one of the most recent observers, there is hyperplasia of the epidermis, especially of the horny layers, and downgrowth of the interpapillary processes. In the corium there is great increase of fibrous tissue and fat; in the vessels, and in the larger arteries, there is great increase of the adventitia, the middle coat is but little altered, while the intima in most of the vessels is much thickened, so as to encroach upon, and even fill up, the lumen, *i. e.*, there is endarteritis obliterans. In the bones the condition is one of "rarefying osteitis." Still later Moreira † of Bahia finds a chronic inflammation of the upper layer of the cutis, and a fibrous hypertrophy of the collagen tissue in the area of the furrow. He found no leprosy bacilli or other micro-organisms. The bone tissue is gradually absorbed, and is re-

\* Cases of *ainhum* in Europeans have been reported by Mirault, Fiontan, and others, but they are not accepted as genuine cases.

† J. Moreira, *Monatsh. f. prak. Derm.*, xxx., No. 8, p. 361, with three figures. *Abs. Brit. Jour. Derm.*, vol. xii. (1910), p. 334. Clinical details of nineteen cases. The histology was done in Unna's laboratory.

placed by fibrous tissue. Other authors describe the conversion of the soft tissues and bone into a uniform fatty mass. The line of the division may occur either through the middle of the proximal phalanx, or at the proximal inter-phalangeal joint (Crombie).

Zambaco's view that it is a modified leprosy was put forward in 1867 by Collas, but is scarcely worth discussion.

Manson suggests that it is due to frequently repeated irritation from injuries in walking barefooted, setting up fibrous changes to which the negro race are especially liable, *e. g.*, their proneness to keloid.

*Treatment.*—Da Silva Lima found that at the commencement division of the contracting band by incision at right angles to its course cured the disease. Murray of Trinidad confirms this. At the later stage there is nothing to be done but to amputate the toe as soon as it becomes painful or troublesome.

Proust \* has endeavored to show that ainhum is pathologically identical with congenital amputation, but this view is not accepted.

\* *Gazette des Hôpitaux*, April 4, 1889. See also the refutation by Trélat, *Gaz. Hebd. de Méd. et de Chir.*, February 28 and March 7, 1891, pp. 102, 113, and abs. in the *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 614.

## CLASS VII.

### NEUROSES—SENSORY DISEASES.

#### NEUROSES CUTANEÆ.

As a matter of practical convenience the neuroses of the skin are restricted to disturbances of its sensory innervation, the symptoms of which are entirely subjective, the changes being functional only; any visible effects, such as may be due to scratching, are secondary or accidental.

These affections come under excess or diminution of sensibility, *i. e.*, hyperesthesia, dermatalgia, pruritus, and anesthesia.

#### HYPERESTHESIA.

Exalted sensibility of the skin may be idiopathic or symptomatic; practically nearly all cases are symptomatic. It may be general or local, perhaps restricted to one nerve domain, symmetrical or unilateral, and due to functional or organic disease of the nerve centers, trunks, or peripheral terminations, and of an irritative rather than of a paralytic kind. The chief cause with which dermatologists have to do is hysteria, and even then it is only one of many phenomena attending that condition. It is present in a slight degree in some cases of urticaria factitia; at the onset of non-tuberculated leprosy, generally in the course of the ulnar or sciatic nerves; and in neuroma cutis. The surface may be so sensitive that the slightest touch even of the clothes is painful; and changes of temperature, or a mere breath of air, produce more or less discomfort, and in hydrophobia, a characteristic and painful spasm. Its duration depends upon its cause; in hysteria, for example, it may shift its position from one side to the other, and come and go in an inexplicable manner. There are, however, a few cases in which there is no apparent cause, and these are classed as idiopathic.

For the paresthesiæ of various kinds met with as a symp-

tom of many nervous diseases, central and peripheral, works on neurology should be consulted.

### DERMATALGIA.

*Synonyms.*—Neuralgia of the skin; Rheumatism of the skin;  
*Fr.*, Dermalgie; *Ger.*, Nervenschmerz der Haut.

*Definition.*—Pain in the skin, not consequent upon structural change in it.

Piorry, Beau, and Axenfeld have specially studied this condition. While in a few cases it appears to be primary, more frequently it is due to some organic disease of the nerve centers, especially locomotor ataxy.

In a considerable number of cases there is a history of rheumatism, as was first pointed out by Beau, and exposure to cold has been the direct exciting cause. Chlorosis has been present in some cases, and hysteria in many, while in others there has been no defect in health. Organic disease of the sensory centers, or paths, in the brain and cord are responsible for nearly all the rest.

It is usually strictly and limitedly local, but may be general, and it is more common in hairy parts and in women. There is nothing to be seen; there is simply spontaneous pain, constant or intermittent, and of all grades of severity; it is of a superficial character, and accompanied by more or less hyperesthesia, though firm pressure will sometimes relieve it; burning, pricking, shooting, or boring sensations have been met with by Duhring, and the pain is generally worse at night. The disease may last for an indefinite time, and even when apparently well is liable to relapse.

This condition is distinguished from mere hyperesthesia by the pain being spontaneous, as well as easily excited, and more limited in area as a rule, and it is distinguished from ordinary neuralgia by its being superficial, and accompanied by hyperesthesia.

**Causalgia**, or the burning sensation symptomatic of the glossy skin, is an allied condition.

**Erythromelalgia.** This was first described by Graves, and independently by Weir Mitchell in 1872, who gave it the above

name, which means "red neuralgia." The leading symptoms are shooting, throbbing, and burning pains, more or less constant, with exacerbations of severity, especially when the foot is dependent, or on pressure, hyperalgesia being always present. The pain also is greater in hot than in cold weather. There is in addition a patchy redness when the limb hangs down, which is absent when it has been raised up for some time. Hyperidrosis also is usually present. The lower limb, especially the foot, is chiefly affected, but the lower segments of the upper limb may also be involved, and it has attacked the face. It is now known that the condition is symptomatic of many forms of brain and cord disease, such as disseminated sclerosis, tabes dorsalis, neurasthenia, and myelitis. Pospelow's case was associated with Morvan's disease. It may also be due to peripheral neuritis. It is probably an angio-neurosis. In a woman of forty-nine, in whom these symptoms had been present a year, in consequence of prolonged worry, the pinky redness was limited to the outer border and anterior two-thirds of the right sole. The first symptoms were terrible itching, followed by pricking, shooting, and burning, constant, but with exacerbations several times a day. She found some relief by soaking her foot in hot water, as it was dry and not moist as usual. Regarding it as peripheral, I ordered phenacetin gr. v. three times a day, which gave marked relief, especially to the burning, which was quite subdued. Most cases differ from the above in being aggravated by warmth. Morel-Lavallée's case lasted twenty-two years, the hands were affected with intense burning, and there was a slight degree of Raynaud's disease, an associated condition which has been met with several times. In a case of Elsner's gangrene extended to the foot. Weir Mitchell and Spiller in one case found intense degeneration of the peripheral nerves of the great toe, and thickening of the coats of the arteries and contraction of their lumen. In this and another case amputation of the part first affected gave relief. In a case of Elsner's erythromelalgia had existed in the left index from the age of sixteen. After twenty-three years of intense suffering the finger became gangrenous and was amputated and she was cured. He thought this disease could not be separated from Raynaud's.

*Treatment* of the other forms of dermatalgia must depend

upon the cause. Where no disease of the nerve centers or other definite reason can be found rheumatism is the probable source of the mischief; salicylate of soda or quinine may be tried, with vapor or Turkish baths, if it is widespread; but shampooing could scarcely be borne in the more localized forms. Beau recommends that the part should be blistered, but the better plan is to blister or apply a mustard leaf over the center from which emanates the nerve supply to the affected part. In all peripheral pain phenacetin and antipyrin are worth trying. The application of the menthol cone to the part would probably give temporary relief. In many cases the pain subsides spontaneously in a few weeks.

### PRURITUS.

*Definition.*—A functional defect of innervation, in which itching is the only direct symptom.

Much confusion arises from the terms prurigo and pruritus being frequently used as if they were synonymous. Here pruritus is used, not in reference to it as a symptom of a large number of skin diseases, such as eczema, urticaria, etc., but for those conditions in which the subjective sensation of itching is the sole symptom of the disease, though there may be secondary lesions where the scratching has been very energetic, the signs of which have already been described under "The Scratched Skin" (p. 42). In the greater proportion of cases of general pruritus, although the itching is considerable, the secondary manifestations are absent, the skin appearing quite normal. In the majority itching is complained of, but sometimes tingling, formication, or other modification of the sensation is described by the sufferer, and while, in some cases, it is only a trifling inconvenience, in others it produces profound misery, less endurable almost than pain, and inducing such depression of mind as to result even in insanity. Bronson \* argues

\* "The Sensation of Itching," by E. B. Bronson, *New York Medical Record*, October 18, 1890. and Reprint Syd. Soc. Selected Monographs in Dermatology, 1893. "The Pathology and Treatment of Pruritus." A Discussion at Annual Meeting of *Brit. Med. Assoc.*, 1895, by McCall Anderson, Brooke, etc., *Brit. Jour. Derm.*, vol. vii. (1895) p. 291.

that there is a special sense of contact apart from that of ordinary touch, and that pruritus is the result of disturbance of this sense of contact.

*Symptoms.*—Pruritus may be general or local. In the general cases, **Pruritus Universalis**, the itching is not present all over the body at the same moment, but now one, now another part itches, and no sooner is it better in one place than it is worse in another. There are, however, great variations in duration; sometimes it is practically constant, at others there may be intervals of relief, but all cases are worse at night, where it pursues the patient even into his dreams, giving them what may be called a pruritic impress.

Exposure, either to heat or cold, will generally excite it.

In the local forms, although any part may be attacked, the genitalia and anus are the favorite regions, and hence we meet with the terms *P. vulvæ*, *scroti*, and *ani*, as if they were special diseases; but the scalp and face are not very uncommon positions, and in the latter it is felt chiefly about the nose and mouth.

Occasionally the pruritis is localized to the palms and soles, or to the course of a nerve—*e. g.*, I have met with an instance in an elderly woman in whom the pruritus was limited to the distribution of the sciatic, which was speedily relieved by the application of mustard leaves over the hip.

In **P. Vulvæ** the itching may affect the labia, vagina, and clitoris, individually or collectively, and is, in some cases, so constant and severe as to quite unfit the patient for all social duties, and it becomes, therefore, a very serious affection.

In man the **scrotum** is the part most frequently affected, but the perineum and even the anus are often involved also; in a few cases the orifice of the urethra is the part attacked.

**Pruritus Ani** is a very common affection in both sexes and at all ages, and is often so intense as to goad the patient to the most violent scratching; consequently, excoriations and more or less eczema and thickening are very frequent concomitants both of vulvar and anal pruritus, and bring their own aggravation. The itching may be confined to the outside, or affect the inside also. Epithelioma may be developed from long-continued scratching.

*Etiology.*—This is very important, as the success of the treatment depends upon its correct determination.

General pruritus in the aged (*P. Senilis*) is a symptom often accompanying senile degenerative changes in the skin, and is sometimes especially intense in the “senile warts” previously described. Probably the dryness of the senile skin is a predisposing cause, and in many persons who have naturally what is called an itchy skin there is a congenitally dry skin. In old people defective elimination from kidney and other degenerations plays an important part, and the cause may really be degeneration of the nerve-ends in some instances. In adults generally, always excluding such conditions as urticaria, pediculosis, and scabies, the most common cause is hepatic derangement, whether functional, as seen in the lithemia of Murchison, or organic, especially after ordinary jaundice, in which, independent of the cause, the itching is often very severe and persistent, though it seldom comes on before the jaundice has been present for some time or is declining. The next most frequent causes are disorders of the alimentary canal, such as dyspepsia, with or without constipation, “the gouty state,” kidney diseases, such as albuminuria, chronic Bright’s disease, and diabetes mellitus. Ovarian and uterine disorders, and pregnancy sometimes originate it. In the last, when it has once been present, it is very likely to recur at any subsequent pregnancy.

Depressing mental influences play a certain part in the etiology, and under this head may be included those cases in which the patients, generally of the better classes, have suffered, or imagine, on more or less good grounds, that they have suffered, from scabies or pediculosis, but whom nothing will persuade that they are still not infected, however long and effectually they may have been treated. Such cases of what might be called “pruritus mentis” are often on the borderland of insanity, and may end in actual melancholia.

*P. Palmæ et Plantæ* is rare; it may occur either with or without hyperidrosis. Many of the patients are gouty; in women it is occasionally seen in association with uterine disorders. Some drugs and foods would sometimes produce itching in some persons with special idiosyncrasy. Season has a certain influence in some cases; some patients suffer from itching in summer only (*P. æstivalis*); others in winter (*P. hiemalis*), on

which Duhring \* and Corlett † in America, Hutchinson in England, Obersteiner in Austria, and Dubreuilh ‡ in France, have written papers. They consider it a distinct affection; it may be general, but usually is confined to the lower extremities. I have met with a few instances. One patient, a plumber, æt. twenty-nine, had suffered every winter for six years, the pruritus being general, lasting as long as the cold weather. There were no objective signs, and no evidence of lead-poisoning or gout, except that his urine was frequently loaded with lithates. Sulphur baths gave him most relief, but internal medication had but little effect. In another case it had existed from boyhood, though his skin was moist. In children itching of the thighs and legs is often experienced in cold weather. The skin is slightly red and rough. The affection is really a slight eczema. Xerodermatous children are especially liable to it.

*Local Pruritus* is often dependent on a local cause. Pruritus vulvæ in children is generally due to ascarides in the rectum, and sometimes in the vagina itself. Other causes of irritation of the lower bowel, such as catarrh, scybala, etc., may also produce it. In adults it may be due to uterine or ovarian derangements, functional or organic, or be a concomitant of vaginitis and urethritis, and is often present only at, or much aggravated just before or during, the periods; but it is still more frequently present as one of the neuroses to which women are liable at the climacteric age. Diabetes mellitus is a frequent cause, chiefly in middle life, but in all cases the urine should be tested, eczema vulvæ being then invariably present also; indeed in all cases eczema is a cause or consequence. Sometimes pruritus vulvæ has developed on pruritus ani, and is then due to the same cause as that affection.

*Pruritus ani* in an adult is in nearly all cases due to hepatic derangement, and the hemorrhoids which are so frequently present are the consequence of this derangement and at the same time produce local aggravation of the itching; the same may be said of constipation and fissures. Decomposition of the sweat in those who perspire freely is another source of irritation.

\* Duhring, *Phil. Med. Times*, January 10, 1874.

† W. F. Corlett, "A Clinical Study of Pruritus Hiemalis," *Amer. Jour. Cut. Dis.*, vol. ix. (1891), p. 41.

‡ Dubreuilh, "Prurigo hivernal," *Jour. de Méd. de Bordeaux*, February 8 and 15, 1891.

In gouty people pruritus ani is often one of their first warnings that they are going wrong. Both P. ani and of the pudenda in both sexes may also be due to pelvic tumors obstructing more or less the pelvic veins and inducing, therefore, a local congestion.

In children ascarides in the rectum, or tapeworm, or lumbrici higher up, or mere catarrh of the intestinal canal may be the causes of anal or nasal itching, as may often be observed in rickets.

*Pruritus Scroti* and of the pudenda generally in men is not common, except as the result of eczema, which is not necessarily very pronounced.

Itching at the end of the penis may be caused by stone or other irritant at the neck of the bladder.

*Pathology.*—As already intimated the disease is a sensory neurosis, due to a direct or reflex irritation of any part of the nervous system, from the center to the periphery of the part affected, and not accompanied by any appreciable lesion of the skin nerves, but the presence of epithelium appears to be essential, as in the familiar instance of wounds which do not itch until epithelium appears.

*Diagnosis.*—This resolves itself into the diagnosis of the causes of the itching, and familiarity with the etiology is therefore essential. As a matter of practice, when a patient complains of general pruritus, the first thing to do is to exclude parasitic irritation, whether of bugs, fleas, gnats, lice, the itch acarus, or harvest bug, etc.; nine times out of ten, however, the parasite is the pediculus in an elderly person, or the scabies acarus at any age. The position of the scratch marks will go a long way towards deciding this; if they are about the shoulders to any extent, there is a strong presumption in favor of *pediculosis*; if about the hands or wrists, of *scabies*. The other points of diagnosis of these diseases are described under their respective heads. The next most common disease is *urticaria*, and unless the patient is a child there will very probably be no objective symptoms at the time of examination; the patient's answer to the question as to whether he "comes out in bumps as if stung with a nettle" will settle this point, though it has still to be determined whether the urticaria is the primary cause of the itching, or only the consequence of the scratching. These

three diseases being excluded—and it is only in one or other of them that the so-called “pruritic rash” is very marked—investigations into the presence of any *hepatic, digestive, or renal* disorder must be successively investigated, the urine in all cases is to be tested, and but few cases will remain that are not referable to one or other of these systems. If the patient is advanced in years, and every other source of itching can be excluded, then, and not till then, the diagnosis of *senile pruritus* remains as a refuge, but it must be borne in mind that there may be defective elimination without the physical signs of albuminuria, etc. When the pruritus is local a careful examination of the part must be made, to exclude any objective source of irritation, and the various causes enumerated under etiology reviewed, until the right one is found, or at least till driven to confess ignorance, after the most careful investigation has failed to reveal the *fons et origo mali*.

*Prognosis.*—This is good or bad according to the success or failure in finding the cause, and the possibility of reaching or obviating it.

*Treatment.*—This again depends upon the cause, and unless it has been discovered success is not very likely to attend aimless therapeutic efforts. The internal treatment is both dietetic and medicinal, directed to the removal of any hepatic, digestive, renal, or uterine disorders that may be discovered.

The diet should be bland and easily digestible; alcohol should be very sparingly taken, and is often best avoided altogether, and all condiments and sauces should be forbidden.

The bowels in all cases must be carefully regulated; saline aperients are often required at first, and afterwards the bowels must be kept regular by extract of cascara sagrada, the compound liquorice powder, or other suitable laxative; as a rule, aloes should be avoided where the pruritus affects the anus or pudenda. Alkalies, especially bicarbonate and salicylate of sodium or of potassium, are generally required for icteric and other hepatic derangements; but it is unnecessary to go into further details, as the internal treatment is in accordance with the general principles of medicine in the treatment of the various disorders, and success seldom fails to attend judicious and persevering efforts in the several directions indicated. There is, however, one empirical remedy that is sometimes of service,

when either the cause is of an organic and irremovable kind, or where it cannot be ascertained. This is *cannabis indica*, first suggested by Bulkley for senile pruritus; five minims of the tincture are enough to begin with, but the dose generally requires to be increased up to twenty or thirty minims three times a day, well diluted, and after meals, or it will upset digestion; marked relief is generally experienced, and often complete cure, unless the original cause is still in active operation. It appears to act by diminishing cutaneous sensibility, and in a certain proportion of cases has acted very satisfactorily in my hands. He also recommends *tr. gelsemii* in ten minim doses, repeated every half hour until  $\text{ʒj}$  has been administered, unless toxic effects show themselves. Hutchinson advocates *vinum antim. tart.*,  $\text{m̄v}$  *ter die* in senile pruritus. I have known it relieve one case.

Wannemacker has found lactophen fifteen grains three times a day relieve severe pruritus, but he is not able to point out when it is especially indicated. Hypodermic injection of one-tenth to one-third of a grain of pilocarpin is said to give as much as a day's relief from the pruritus of jaundice, though there may be a transitory aggravation. Antipyrin and phenacetin are also sometimes successful, but all these empirical remedies are a confession of failure to ascertain or to eliminate the true cause of the pruritus. Whether the itching be general or local, especially of the anus, in some obstinate cases much benefit will be derived at an alkaline spa, such as Ems, Vichy, Contrexéville, or Harrogate; or where there is a necessity for laxatives, Carlsbad or Marienbad. The thorough flushing by large quantities of weak alkaline waters is often most efficacious.

External treatment is always of value, and even when it does not affect the cause of the itching, by giving temporary relief it enables the patient to abstain from scratching, and this gives the irritated nerve filaments a chance of settling down, while internal or other radical measures are being directed to the origin of their trouble. For general pruritus lotions of various kinds are of service—at all events, for a time. The majority of them are of the disinfecting class, and it is always desirable to change them from time to time, if only to satisfy the mind of the patient, the mental attitude exercising an important influ-

ence on the result. One of the best is the liq. carbonis detergentis ℥ij to aquæ ℥viiij, or the liq. picis alkalinus, in the same proportion, is almost equally good, or lysol ℥iss to ℥viiij; others are terebene ℥j to ℥viiij; sanitas 1 part to 2 or 4 of water; carbolic acid 1 in 60; benzoic acid ℥ij, aq. ℥viiij; thymol ℥ij, liq. potass. ℥j, glycerin ℥iiij, aq. ℥viiij, this is a very good lotion; salicylic acid ℥ij, sod. bibor. ℥j, glycerin q. s., mix the acid and borax with ℥iv of glycerin, heat gently until dissolved, then add glycerin to make up ℥j; this can then be diluted with glycerin, alcohol, and water to any extent, ℥j of the first compound, ℥j of alcohol, and water to ℥viiij, is a good proportion; it has the advantage of being free from smell, which is a drawback in the use of most of the others. Perchlorid of mercury gr. 1-2 to gr. 3 to ℥j of water is another good odorless lotion. Camphor chloral (equal parts of each constituent) gave great relief in a case of senile pruritus where the warts were the site of the itching; it may also be used diluted, by applying with a sponge to the itching surface. As a rule, lotions for senile pruritus should contain spirit, about one-quarter of spiritus rosmarini, eau de Cologne, or plain spirit, being added to one or other of the above anti-pruritic lotions, the evaporation and consequent cooling of the skin giving great relief. For this reason menthol gr. 2 to gr. 10 to the ℥j of water relieves this and other forms of pruritus. Chloroform ℥j, glycerin ℥iv, water ℥viiij; sodii sulphidi ℥ij, glycerin ℥ss, water ℥viiij; potassii cyanidi ℥j to water Oj, are other formulæ recommended on good authority. Baths are often very beneficial: alkaline with or without starch, bran, or gelatin, and sulphid of potassium, or the sulphacqua salts, are most frequently successful (see Appendix for formulæ). Vapor and Turkish baths are worth trying.

Static electricity was strongly recommended by Leloir for pruritus both general and local, the latter especially. The patient is placed on an insulated stool, and is connected with one pole of a Wimshurst machine. The other pole with a metallic terminal is brought to four inches from the affected part. A brush discharge ensues which he says is not painful. The constant current has also been used in vulvar pruritus. Quite recently the high-frequency currents have been said to give speedy relief to local itching.

For local pruritus special remedies are generally necessary;

the number recommended as always giving relief testifies to the obstinate resistance to medication frequently offered.

*Pruritus Scroti* is often best relieved by painting on argentic nitrate gr. 10, sp. ætheris nitrosi ʒj. The unguentum hyd. ammon. gr. 10 or 20 to ʒj is often useful here also. Boric acid lotions are good in many cases. Bulkley's plan, as set forth for eczema scroti, gives several hours' relief; water, as hot as can be borne, being applied for five minutes at a time.

Bronson's oil for local itching is liquor potassæ ʒij, acidi carbolicī ʒiv, ol. lini ad ʒij, ol. bergamot ℥x.

For *Pruritus Vulvæ* strong lead lotion, ʒij or ʒiv to ʒviii, is a good one; or nitrate of silver gr. 5 to 10 to ʒj of nitrous ether is one of the best applications; the stronger lotions are used at intervals of a couple of days, but they stain both skin and linen. A saturated solution of boric acid answers well in many cases; Neale thinks it one of the best remedies. Pixene is strongly recommended by Locke, ʒij to ʒvj of water with ʒss of glycerin; but the best of all, in my opinion, is the plan recommended by Reeves, the compound tincture of benzoin, B. P., painted on with a camel's-hair brush every night. Where there is thickening multiple scarification may be useful, and Unna recommends linear scarification with his micro-cautery.

*P. Ani.*—Many mercurial ointments give immense relief for the time being. Ammoniated mercury gr. 20 to ʒj of benzoated lard is a favorite of mine. The yellow oxid of the same strength is often useful, and calomel gr. 10 to ʒss to ʒj is another good one; some combine with these carbolic acid gr. 10, creasote ℥xv, or camphor ʒss. The oleate of mercury, 1 or 2 per cent. with or without oleate of morphia, is often beneficial, but stronger applications must be used with caution; the diluted nitrate is another good application. Peruvian balsam, rubbed up with a little vaselin, is often successful. Sometimes benzoated oxid of zinc ointment, B. P., is better than anything if applied with strong pressure so as to temporarily empty the dilated veins. It should always be by the bedside to apply in mitigation of damages when the patient has yielded to the temptation to scratch. Ichthyol as a 5 per cent. lotion or a 10 per cent. ointment or soap has many friends.

Morris strongly recommended cocain as successful in one obstinate case, and others have spoken well of it, but it has not

helped me much. It would be most likely to succeed when a starting point of the pruritus can be localized. Extract of belladonna gr. 1-2 to gr. 1, in the form of suppository at bedtime, often enables a patient to get off to sleep before the torment comes on; morphia may be added, or given alone. In all cases, especially in those who perspire freely, ablutions with carbolic acid 1 in 60, saturated solutions of boric acid, and 1 in 4000 perchlorid of mercury, lysol 3iss to ʒviii, or with permanganate of potash lotion, are necessary, and of themselves often give relief. If there are external piles, the old unguentum gallæ is often useful for both the piles and pruritus, but painting with hazeline or injections of it are better. These are a few only of many local remedies, but though all are more or less temporarily useful, the mercurial ones are generally the most successful; but permanent relief is only to be obtained by the treatment suitable for the etiological factor.

The mineral spas of Contrexéville and Ems, or, if aperients are required, Carlsbad and Marienbad, are often of signal service in pruritus ani.

In spite of this extensive armamentarium successful treatment is often very difficult, though few cases are absolutely incurable.

### ANESTHESIA.

This affection comes under the notice of the neurologist more than that of the dermatologist.

There are all grades of it, from only slight diminution of sensibility up to complete loss of sensation to the strongest impressions. It may be general or local, unilateral or symmetrical, hemiplegic or paraplegic, limited to a single nerve domain or affecting several; there may also be analgesia, without loss of tactile sensibility, as in syringomyelia, or intense pain with loss of ordinary sensibility (anesthesia dolorosa of Romberg), or both may be absent together. Like the other sensory neuroses it is chiefly interesting from an etiological point of view. It may be idiopathic or symptomatic, and dependent on internal or external causes. The internal causes are either in the sensory nerve centers, or at some point where the sensory path from the periphery to the center is interrupted,

*e. g.*, unilateral lesions of the brain surface or the parts adjacent, locomotor ataxy, traumatic disease of the nerves, syphilis, leprosy, or tumors pressing on a nerve trunk. In leprosy the function may be disturbed by either nerve trunk lesions or peripheral clogging, so to speak, with leprosy infiltration.

Hysterical anesthesia is not uncommon, and is unilateral, but not always on the same side, changing about under mental influences in the most extraordinary way. Of external causes, cold, however applied, carbolic acid, caustics, cocain, chloroform, aconite, pressure on a nerve, *e. g.*, the ulnar, are the most common; while of drugs given internally, chloroform, ether, nitrous oxid, and other anesthetics, cannabis indica, alcohol in excess, lead, and opium may be mentioned.

The *treatment* entirely depends upon the cause and its amenability to medical measures.







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